

Recorded in Official Records, Orange County
Tom Daly, Clerk-Recorder

RECORDING REQUESTED BY:
United States of America
Department of the Navy
BRAC Program Management Office West
1455 Frazee Road, Suite 900
San Diego, California 92108-4310



312.00

2008000090055 08:00am 02/28/08

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WHEN RECORDED, MAIL TO:
Department of Toxic Substances Control
Region IV
5796 Corporate Avenue
Cypress, California 90630
Attention: Mr. John Scandura, Chief
Office of Military Facilities

SPACE ABOVE THIS LINE RESERVED FOR RECORDER'S USE

COVENANT TO RESTRICT USE OF PROPERTY
ENVIRONMENTAL RESTRICTION
(Re: FORMER MARINE CORPS AIR STATION TUSTIN)
Early Transfer Parcel (ETP) 24-1A (Portion of Parcel 24)

This Covenant and Agreement ("Covenant") is made by and between the United States of America acting by and through the Department of the Navy ("DON" or "Covenantor"), the current owner of property situated in the City of Tustin, County of Orange, State of California, and described and depicted in Exhibits A, B1, and B2 respectively, attached hereto and incorporated herein by this reference ("Property") and the State of California acting by and through the California Department of Toxic Substances Control ("DTSC" or "Department"). The Covenantor and Department, collectively referred to as the "Parties", intend that the use of the Property be restricted as set forth in this Covenant in order to protect human health, safety, and the environment. The Department has determined that this Covenant is reasonably necessary to protect present or future human health or safety or the environment as a result of the presence on the land of hazardous material as defined in California Health and Safety Code ("Health

and Safety Code”) section 25260, and enters into this Covenant in accordance with Health and Safety Code section 25355.5 and California Civil Code (“Civil Code”) section 1471. In addition, pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (“CERCLA”) section 104 (42 U.S.C. § 9604), as delegated to the Covenantor by Executive Order 12580, ratified by Congress in 10 United States Code section 2701 et seq., and implemented by the National Oil and Hazardous Substances Pollution Contingency Plan, 40 Code of Federal Regulations part 300, and implementing guidance and policies, the Covenantor has also determined that this Covenant is reasonably necessary to protect present or future human health or safety or the environment as the result of the presence on the land of hazardous substances as defined in CERCLA section 101 (42 U.S.C. § 9601).

The Covenantor currently has legal title and interest in the Property sufficient to enter into and record this Covenant and to provide for continuing enforcement of the restrictions contained in this Covenant. This Covenant shall be enforceable against the Property and any portion thereof in that it shall run with the land to all successors and assigns as provided in this Covenant.

ARTICLE I

STATEMENT OF FACTS

1.01 The DON and the Department entered into a Federal Facility Site Remediation Agreement (“FFSRA”) for the former Marine Corps Air Station (“MCAS”) Tustin on August 18, 1999, pursuant to which the DON agreed to investigate and respond to releases of CERCLA hazardous substances at the former MCAS Tustin. Pursuant to the FFSRA, the DON may satisfy some or all of its corrective action obligations under the Resource Conservation and Recovery Act (“RCRA”) (42 U.S.C. 6901 et seq.) or

Health and Safety Code section 25200.10 through CERCLA response actions. At the present time the Navy has not completed a RCRA Corrective Action Complete Determination that officially recognizes that all hazardous waste contamination has been addressed.

The Property includes portions of Installation Restoration Program (“IRP”) Site-13S and its groundwater plume, which was designated as Operable Unit (“OU”)-1A. The Property, which has been designated as Early Transfer Parcel (“ETP”) 24-1A, is a sub-parcel of the City of Tustin’s Reuse Plan Parcel 24 and is located within the larger area currently owned by the Covenantor and designated as a portion of Carve-Out 5.

The Property is located at the former MCAS Tustin, in the County of Orange, State of California and is generally in the northern portion of former MCAS Tustin adjacent to and east of Severyns Road and north of Copeland Street. The Property totals approximately 2.427 acres

1.02 Soil and groundwater within the Property were investigated by the Covenantor as provided in the FFSRA as part of the IRP. Depth to first encountered groundwater at the Property varies seasonally between approximately 6 and 17 feet below ground surface. The schedule for completing remedy implementation at the Property is set forth in the Site Management Plan (“SMP”) for the former MCAS Tustin as mandated by the FFSRA. However, site-specific conditions may warrant revisions to this schedule. Furthermore, the SMP is updated on an annual basis to reflect future anticipated project schedules.

1.03 IRP-13S: The remedial investigation found 1,2,3-trichloropropane (“1,2,3-TCP”) and trichloroethene (“TCE”), which are possible human carcinogens, to be

the predominant chemicals of concern in groundwater at IRP-13S. The concentration ranges of 1,2,3-ICP and ICE were 1.7 to 340 micrograms per liter (“µg/L”) and 1.3 to 310 µg/L, respectively. The remediation goal for ICE was established at 5 µg/L which is the Federal maximum contaminant level (40 CFR § 141.61); for 1,2,3-ICP the risk based level of 0.5 µg/L was established.

Interim removal of groundwater under a Time-Critical Removal Action (“ICRA”) began in 2002 and is ongoing. The purpose of the ICRA system was to: (i) initiate hydraulic containment of groundwater contaminated with 1,2,3-ICP within present plume boundaries in the first and second water-bearing zones (“WBZs”); and, (ii) minimize further vertical and/or horizontal migration until the final remedy for IRP-13S is implemented or plume migration is stabilized. IRP-13S was addressed in the OU-1A Record of Decision (“ROD”)/Remedial Action Plan (“RAP”), which was issued in October 2004 and finalized in December 2004. The OU-1A ROD/RAP documented the selection of the ‘hydraulic containment with hot spot removal’ as the remedy for IRP-13S. The selected remedy includes the following: combination of groundwater extraction wells and soil excavation to address volatile organic compound (“VOC”)-contaminated groundwater; a groundwater monitoring program; and associated land use restrictions. This remedial action was determined to be adequately protective of human health and the environment and to comply with Federal and State requirements. Field activities to remove ICE contaminated soil greater than 400 micrograms/kilogram (“target cleanup goal”) was completed in April 2005. Regulatory agencies concurred in September 2005 with the DON’s findings regarding the removal of ICE-contaminated soil greater than the target cleanup goal.

The OU-1A ROD/RAP presented the following land-use control objectives to be achieved through land-use restrictions for the site: (a) prohibit the installation of new groundwater wells of any type and prevent exposure to VOC-contaminated groundwater without prior review and written approval from the DON, the DTSC, the Regional Water Quality Control Board (“RWQCB”), and the United States Environmental Protection Agency (“EPA”) until remediation objectives are achieved; (b) prohibit the installation of any well or other structure that has the potential to affect plume migration; and (c) prohibit the alteration, disturbance, or removal of groundwater extraction and monitoring wells and associated piping and equipment (e.g., the treatment system) without prior review and written approval from the DON, the DTSC, the RWQCB, and the EPA.

1.04 The DON issued a Finding of Suitability for Early Transfer (“FOSET”) dated July 5, 2007, to transfer the Property prior to completion of all remedial actions and a final assessment of the adequacy of any interim response action. This type of transfer is subject to Section 120(h)(3)(C) of CERCLA, and requires a determination by the Governor of the state that the Property is suitable for early transfer. Specifically, CERCLA section 120(h)(3)(C)(i)(II) requires that the deed or other agreement governing the transfer contain assurances, among other things, that provide for any necessary restrictions on the use of the property to ensure the protection of human health and the environment.

ARTICLE II

DEFINITIONS

2.01 Covenantor. “Covenantor” shall mean the United States of America acting through the Department of the Navy.

2.02 Department. "Department" shall mean the California Department of Toxic Substances Control and includes its successor agencies, if any.

2.03 Occupant. "Occupant" shall mean any person or entity entitled by leasehold or other legal relationship to the right to occupy any portion of the Property.

2.04 Owner. "Owner" shall include the Covenantor's successors in interest, and their successors in interest, including heirs and assigns, during their ownership of all or any portion of the Property.

ARTICLE III

GENERAL PROVISIONS

3.01 Restrictions to Run with the Land. This Covenant sets forth protective provisions, covenants, restrictions, and conditions (collectively, "Restrictions"), subject to which the Property and every portion thereof shall be improved, held, used, occupied, leased, sold, hypothecated, encumbered, and/or conveyed. These Restrictions are to be construed to be consistent with the separate Restrictions placed in the deed by and in favor of the Covenantor, conveying the Property from the Covenantor to its successor in interest. Each and every Restriction: (a) runs with the land in perpetuity pursuant to Health and Safety Code section 25355.5(a)(1)(C) and Civil Code section 1471; (b) inures to the benefit of and passes with each and every portion of the Property; (c) shall apply to and bind all subsequent Owners and Occupants of the Property; (d) is for the benefit of, and is enforceable by the Department; and (e) is imposed upon the entire Property unless expressly stated as applicable only to a specific portion thereof.

3.02 Binding upon Owners and Occupants. Pursuant to Health and Safety Code section 25355.5(a)(1)(C), this Covenant binds all Owners and Occupants of the Property, their heirs, successors, and assignees, and the agents, employees, and lessees of

the Owners, heirs, successors, and assignees. Pursuant to Civil Code section 1471, all successive owners of the Property are expressly bound hereby for the benefit of the Department.

3.03 Written Notification. Pursuant to Health and Safety Code section 25359.7 the Owner shall, prior to the sale, lease, or rental of the Property, give written notice to the subsequent transferee that a release of hazardous substances has come to be located on or beneath the Property. Such written notice shall include a copy of this Covenant.

3.04 Incorporation into Deeds and Leases. The Restrictions set forth herein shall be incorporated by reference in each and all deeds and leases for any portion of the Property.

3.05 Conveyance of Property. The Owner shall provide notice to the Department not later than thirty (30) days after any conveyance of any ownership interest in the Property (excluding mortgages, liens, and other non-possessory encumbrances). The Department shall not, by reason of this Covenant alone, have authority to approve, disapprove, or otherwise affect a conveyance, except as otherwise provided by law, by administrative order, or by a specific provision of this Covenant.

3.06 Costs of Administering the Covenant to be paid by Owner. The terms of this Covenant run with the land and will continue in perpetuity unless a variance is granted pursuant to section 6.01, or unless terminated pursuant to section 6.02. The Department has incurred and will in the future incur costs associated with the administration of this Covenant. California Code of Regulations, title 22, section 67391.1(h) requires that responsible parties, facility owners or operators, or project proponents involved in land use covenants pay all costs associated with the

administration of such controls. With respect to this Covenant, the requirement in section 67391.1 (h) governing the reimbursement for costs has been satisfied by a Consent Order and Settlement Agreement (Agreement) dated July 10, 2007 between the Department and Marble Mountain Partners, LLC, the immediate successor in interest to the Covenantor, as a final settlement for the identified future costs incurred by the Department in the administration of this Covenant. The sole identified future costs settled under the Agreement are defined in Paragraph 5.2 of the Agreement. Those costs are costs incurred by the Department as follows: 1) future costs to review the documents described in Paragraph 7.03 of the Covenants, to wit: Covenantor's form, "Land Use Controls Compliance Certificate, Operable Unit 1A" or similar form as used for the OU-4B ROD ("Compliance Certificate") and any written explanation submitted by the Owner, or on behalf of the Owner, of the Property in response to deficiencies found during the annual inspection; and, 2) future costs incurred by DTSC to conduct an annual site visit by DTSC, if determined to be necessary by the DTSC, to ensure compliance with the Covenants; and costs to administer the funds paid by Respondent pursuant to the Agreement.

The Agreement excludes additional costs incurred beyond those set forth in paragraph 5.2 of the Agreement and described above and expressly excludes the following costs, among others:

1) any costs incurred by DTSC to take action in response to violations or noncompliance with the Restrictions, as defined in Paragraph 3.01 of the Covenants, contained in the Covenants. DTSC may seek recovery of such costs from the owner or occupant of the portion of the Property where such violations or noncompliance with the

Restrictions occurred under Paragraph 5.01 of Covenants or under any other authority it may have under the law to recover such costs;

2) any costs incurred by DISC in making a determination to grant a variance or terminate all or part of the Restrictions contained in the Covenants pursuant to Paragraphs 6.01 or 6.02 of the Covenants. DISC may seek recovery of such costs from the party requesting the variance or termination.

ARTICLE IV

RESTRICTIONS

4.01 Prohibited Activities. The following activities shall not be conducted on the Property:

- (a) Installation of groundwater wells of any type within the Property without prior review and written approval from the Department.
- (b) Activities that could expose groundwater within the Property without prior review and written approval from the Department.
- (c) Any use of groundwater without prior review and written approval from the Department.
- (d) Activities that could alter, disturb, or remove groundwater extraction and monitoring wells and associated piping and equipment (such as the treatment system) within the Property without prior review and written approval from the Department.
- (e) Installation of any structure or improvement that has the potential to affect plume migration without prior written approval from the Department.

- (f) Construction and or/operations within the Property that interfere with ongoing monitoring or assessment work or the final remedy being conducted by the DON or the Federal, State, or local regulatory agencies, unless specifically approved by the Department.

4.02 Prior Approval to Conduct Prohibited Activities. The DON, with the concurrence of the Base Realignment and Closure (BRAC) Clean-up Team (BCT), which includes the Department, has issued approval of certain projects within the Property. The location, project description, and required procedures are documented in Exhibit C and Exhibit D. These projects may proceed in accordance with Exhibits C and D. Additional projects not related to the approvals in Exhibits C and D shall require separate approval and Owner/Occupant must seek such approvals pursuant to Article VI of this Covenant.

4.03 Non-interference with Ongoing Monitoring, Assessment, or the Final Remedy. No use of the Property or activity conducted on the Property shall interfere with ongoing monitoring or assessment work or implementation of the final remedy being conducted by the Covenantor or the Federal, State, or local regulatory agencies, unless specifically approved by the Department.

4.04 Access for Department. The Department shall have reasonable right of entry and access to the Property for inspection, monitoring, and other activities consistent with the purposes of this Covenant as deemed necessary by the Department to protect the public health or safety or the environment.

4.05 Access for Implementing the Remedy, and Operation and Maintenance. The entity or person responsible for implementing the remedy, including operation and

maintenance activities, shall have reasonable right of entry and access to the Property for the purpose of implementing the remedy and any operation and maintenance activities.

4.06 Notification should Action(s) that Interfere with LUC Effectiveness be Discovered. The Navy shall require, via appropriate provisions to be placed in the “Covenant to Restrict Use of Property” and Quitclaim Deeds, that the future property owner(s) shall notify the Navy, DTSC, EPA, and RWQCB within 3 business days of the discovery of any activity on the property inconsistent with the land use restrictions. The property owner(s) shall then work with the Navy and DTSC to correct the problem(s) discovered. The DTSC is responsible for coordinating with the EPA and RWQCB to ensure approval of the corrective actions undertaken.

Should the Navy discover any activity on the property at any time that is inconsistent with the land use restrictions, the Navy shall notify the DTSC within 3 business days of such discovery. The Navy shall then work with the DTSC to correct the problem(s) discovered. This reporting requirement does not preclude the Navy from taking immediate action pursuant to its CERCLA authorities to prevent any actual or perceived risk(s) to human health or the environment.

ARTICLE V

ENFORCEMENT

5.01 Enforcement. Failure of the Owner or Occupant to comply with any of the Restrictions specifically applicable to the Property shall provide grounds for the Department to require that the Owner modify or remove any improvements (“Improvements” herein shall include, among other things, structures, buildings, roads, driveways, utilities and paved parking areas) constructed or placed upon any portion of the Property in violation of the Restrictions. Violation of this Covenant by the Owner or

Occupant may result in the imposition of civil and/or criminal remedies including nuisance or abatement against the Owner or Occupant as provided by law.

ARTICLE VI

VARIANCE AND TERMINATION

6.01 Variance. The Owner, or a homeowners association on behalf of an Owner, or with the Owner's consent, any Occupant, may apply to the Department for a written variance from the provisions of this Covenant. Such application shall be made in accordance with Health and Safety Code section 25233. The Department will grant the variance only after finding that such a variance would be protective of human health, safety, and the environment and with the concurrence of the Covenantor. The Department shall consult, as appropriate, with the EPA and the RWQCB, which meets the intent of the ROD land-use control objectives noted in Section 1.03.

6.02 Termination. The Owner, or a homeowners association on behalf of an Owner, or with the Owner's consent, any Occupant, may apply to the Department for a termination of the Restrictions or other terms of this Covenant as they apply to all or any portion of the Property. Such application shall be made in accordance with Health and Safety Code section 25234. No termination of the Restrictions or other terms of this Covenant shall extinguish or modify the retained interest held by the United States.

6.03 Term. Unless ended in accordance with paragraph 6.02, by law, or by the Department in the exercise of its discretion, this Covenant shall continue in effect in perpetuity.

ARTICLE VII

MISCELLANEOUS

7.01 No Dedication Intended. Nothing set forth in this Covenant shall be construed to be a gift or dedication, or offer of a gift or dedication, of the Property, or any portion thereof to the general public or anyone else for any purpose whatsoever.

7.02 Recordation. The Covenantor shall record this Covenant, with all referenced Exhibits, in the County of Orange within ten (10) days of the Covenantor's receipt of a fully executed original.

7.03 Site Inspection and Compliance Reporting Requirements. The ROD/RAP and the draft Land-Use Control Remedial Design for OU-1A/IRP-13S are applicable to the Property and require site inspections and annual compliance reporting to address the monitoring and maintenance necessary to ensure compliance with the Restrictions and terms of the Covenant. Submission by Owner, or a homeowners association on behalf of Owner, of the Covenantor's form, "Land Use Controls Compliance Certificate, Operable Unit 1A" or similar form as used for the OU-4B ROD ("Compliance Certificate"), shall be deemed to comply with the reporting requirements of this Paragraph. An example of the Compliance Certificate is attached as Exhibit E to this Covenant. Final details regarding implementation of the Restrictions, which must be complied with, will be documented in the Final RD for OU-1A. In addition, if any deficiencies are found during the annual inspection, the Owner, or a homeowners association on behalf of Owner, must provide to the Department a separate written explanation with the Compliance Certificate stating the specific deficiencies that were found and what efforts or measures have or will be taken to correct those deficiencies. After recording of the Covenant, the annual report shall be provided to the Covenantor and the Department by January 15th of each calendar

year. The Compliance Certificate shall be sent by certified mail with return receipt and signature required and it shall be sent to the Covenantor and the Department pursuant to Section 7.04 of this Covenant.

7.04 Notices. Whenever any person gives or serves any Notice ("Notice" as used herein includes any demand or other communication with respect to this Covenant), each such Notice shall be in writing and shall be deemed effective: (1) when delivered, if personally delivered to the person being served or to an officer of a corporate party being served, or (2) three [3] business days after deposit in the mail, if mailed by United States mail, postage paid, certified, return receipt requested:

To Covenantor: United States Navy
BRAC Program Management Office West
1455 Frazee Road, Suite 900
San Diego, CA 92108-4310
Attention: Director

To Department: Department of Toxic Substances Control
Southern California Region
5796 Corporate Ave.
Cypress, California 90630
Attention: Chief
Southern California Operations
Office of Military Facilities

To Transferee: Marble Mountain Partners, LLC
25 Enterprise
Aliso Viejo, California 92656
Attention: John Baayoun

Any party may change its address or the individual to whose attention a Notice is to be sent by giving written Notice in compliance with this Section.

7.05 Partial Invalidity. If any portion of the Restrictions or other term set forth herein is determined by a court of competent jurisdiction to be invalid for any reason, the

surviving portions of this Covenant shall remain in full force and effect as if such portion found invalid had not been included herein.

7.06 Exhibits. All exhibits referenced in this Covenant and attached hereto are deemed incorporated into this Covenant by reference. Exhibits include:

Exhibit A – Legal Description

Exhibit B1 – Vicinity Map

Exhibit B2 – ETP 24-1A and ETP 24-1B Site Map

Exhibit C – Approved Projects, Descriptions/Procedures Dated 20 December 2005

Exhibit D – Approved Projects, Descriptions/Procedures Dated 3 September 2004

Exhibit E – Land Use Controls Compliance Certificate - Example

7.07 Section Headings. The section headings set forth in this Covenant are included for convenience and reference only and shall be disregarded in the construction and interpretation of any of the provisions of this Covenant.

7.08 Representative Authority. The undersigned representative of each party to this Covenant certifies that he or she is fully authorized to enter into the terms and conditions of this Covenant and to execute and legally bind that party to this Covenant.

7.09 Statutory References. All statutory references include successor provisions.

IN WITNESS WHEREOF, the Parties execute this Covenant.

UNITED STATES OF AMERICA,
Acting by and through the
Department of the Navy

By: 

WILLIAM R. CARSILLO
Real Estate Contracting Officer

Date: 2/26/08

STATE OF CALIFORNIA,
Acting by and through the
California Environmental Protection Agency,
Department of Toxic Substances Control

By: 

JOHN E. SCANDURA, Chief
Southern California Branch
Office of Military Facilities

Date: Feb. 25, 2008

ACKNOWLEDGMENT

State of California

County of SAN FRANCISCO

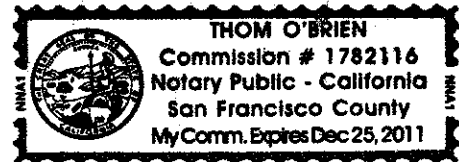
On 2/26/08 before me, Thom O'Brien, Notary Public
(insert name and title of the officer)

personally appeared WILLIAM R. CARSILO,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are
subscribed to the within instrument and acknowledged to me that he/she/they executed the same in
his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the
person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing
paragraph is true and correct.

WITNESS my hand and official seal.

Signature [Signature] (Seal)



GOVERNMENT CODE

[27361-7]

I certify under the penalty of perjury that the notary
acknowledgement on the document to which this statement
is attached reads as follows:

Name of notary: Thom O'Brien

Date commission expires: Dec. 25, 2011

Commission #: 1782116

County where bond is filed: San Francisco

Manufacture/Vendor #: NNA1

Place of execution: Orange

Date: 2-28-08

Signature: Jodi L. Groves
North American Title Company

Print Name: Jodi L. Groves

ACKNOWLEDGMENT

State of California

County of Orange

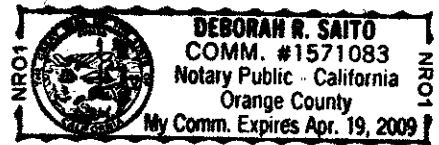
On February 25, 2008 before me, Deborah R. Saito, notary public
(insert name and title of the officer)

personally appeared John E. Scandura
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are
subscribed to the within instrument and acknowledged to me that he/~~she~~/they executed the same in
his/~~her~~/their authorized capacity(ies), and that by his/~~her~~/their signature(s) on the instrument the
person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing
paragraph is true and correct.

WITNESS my hand and official seal.

Signature Deborah R. Saito (Seal)



GOVERNMENT CODE

[27361-7]

I certify under the penalty of perjury that the notary acknowledgement on the document to which this statement is attached reads as follows:

Name of notary: Deborah R. Saito

Date commission expires: April 19, 2009

Commission #: 1571083

County where bond is filed: Orange

Manufacture/Vendor #: NR01

Place of execution: Orange

Date: 2-28-08

Signature: Jodi L. Groves
North American Title Company

Print Name: Jodi L. Groves

EXHIBITS

EXHIBIT A

LEGAL DESCRIPTION

EXHIBIT "A"
LEGAL DESCRIPTION

CITY OF TUSTIN
COLUMBUS SQUARE TRACT NO. 16581
EARLY TRANSFER PARCEL (ETP) 24-1A

LOTS 341, 342, 349, 350, 351, 352, 353, AC, AN, AO, AR, AQ, AND PORTIONS OF LOTS 333, 346, 348, AA, AM, AP, ZB OF TRACT NO. 16581, IN THE CITY OF TUSTIN, COUNTY OF ORANGE, STATE OF CALIFORNIA, AS SHOWN ON THE MAP RECORDED IN BOOK 877, PAGES 33 THROUGH 50 INCLUSIVE, OF MISCELLANEOUS MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

BEGINNING AT THE CENTERLINE INTERSECTION OF ROCKVILLE WAY AND THE WESTERLY LINE OF SAID TRACT NO. 16581;

THENCE, LEAVING SAID WESTERLY LINE, SOUTH 85°27'50" EAST, ALONG SAID CENTERLINE AND ITS EASTERLY PROLONGATION 86.68 FEET TO A POINT ON THE WESTERLY LINE OF SAID LOT 350, SAID POINT ALSO BEING THE BEGINNING OF A NON-TANGENT CURVE, CONCAVE WESTERLY, HAVING A RADIUS OF 312.00 FEET, A RADIAL LINE TO SAID POINT BEARS SOUTH 84°45'03" EAST;

THENCE THE FOLLOWING FOUR COURSES BEING ALONG THE WESTERLY LINE OF SAID LOT 350, THE WESTERLY, NORTHWESTERLY AND NORTHERLY LINES OF SAID LOT 352;

THENCE NORTHERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 1°40'18", AN ARC LENGTH OF 9.10 FEET;

THENCE, NORTH 03°34'39" EAST, 96.88 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE SOUTHEASTERLY, HAVING A RADIUS OF 15.00 FEET;

THENCE NORTHEASTERLY ALONG SAID CURVE, THROUGH A CENTRAL ANGLE OF 97°24'00", AN ARC LENGTH OF 25.50 FEET;

THENCE, SOUTH 79°01'21" EAST, 46.05 FEET TO A POINT ON THE WESTERLY LINE OF SAID LOT AC;

THENCE THE FOLLOWING THREE COURSES BEING ALONG THE WESTERLY LINE OF SAID LOT AC, THE WESTERLY AND NORTHERLY LINES OF SAID LOT 333;

THENCE, NORTH 10°58'39" EAST, 24.00 FEET TO THE SOUTHWEST CORNER OF SAID LOT 333;

THENCE, NORTH 10°58'41" EAST, 57.74 FEET TO THE NORTHWEST CORNER OF SAID LOT 333;

THENCE, SOUTH 79°21'27" EAST, A DISTANCE OF 109.94 FEET TO A POINT ON THE EASTERLY LINE OF EXCEPTION IRP-13S AS SHOWN ON SAID TRACT NO. 16581, SAID POINT BEING DISTANT NORTH 04°32'10" EAST 482.74 FEET, MEASURED ALONG SAID EASTERLY LINE FROM THE MOST SOUTHERLY CORNER OF SAID LOT 341;

THENCE THE FOLLOWING SIX COURSES BEING ALONG SAID EASTERLY LINE OF EXCEPTION IRP-13S, THE SOUTHERLY, SOUTHWESTERLY AND WESTERLY LINE OF SAID TRACT NO. 16581;

THENCE SOUTH 04°32'10" WEST, 482.74 FEET TO SAID MOST SOUTHERLY CORNER OF SAID LOT 341;

THENCE, NORTH 79°21'27" WEST, 254.17 FEET TO AN ANGLE POINT IN SAID LOT 342;

THENCE, NORTH 35°59'46" WEST, 34.19 FEET TO AN ANGLE THEREIN;

THENCE, NORTH 07°15'25" EAST, 167.38 FEET, TO THE BEGINNING OF A NON-TANGENT CURVE CONCAVE WESTERLY, HAVING A RADIUS OF 630.02 FEET, A RADIAL LINE TO SAID POINT BEARS SOUTH 82°11'07" EAST;

THENCE NORTHERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 3°16'43", AN ARC LENGTH OF 36.05 FEET;

THENCE, NORTH 04°32'10" EAST, 41.01 FEET TO THE POINT OF BEGINNING.

THE HEREIN ABOVE DESCRIBED PARCEL CONTAINS 105,737 SQUARE FEET OF LAND, MORE OR LESS.

SUBJECT TO COVENANTS, RIGHTS, RIGHT-OF-WAYS AND EASEMENTS OF RECORD, IF ANY.

SEE EXHIBIT "B" ATTACHED HERETO AND BY THIS REFERENCE MADE A PART HEREOF.


DANNY C. PETERSON, P.L.S. 6200
REGISTRATION EXPIRES 3/31/08

6/22/07
DATE



EXHIBIT "B"

CITY OF TUSTIN, COLUMBUS SQUARE TRACT NO. 16581
EARLY TRANSFER PARCEL (ETP) 24-1A

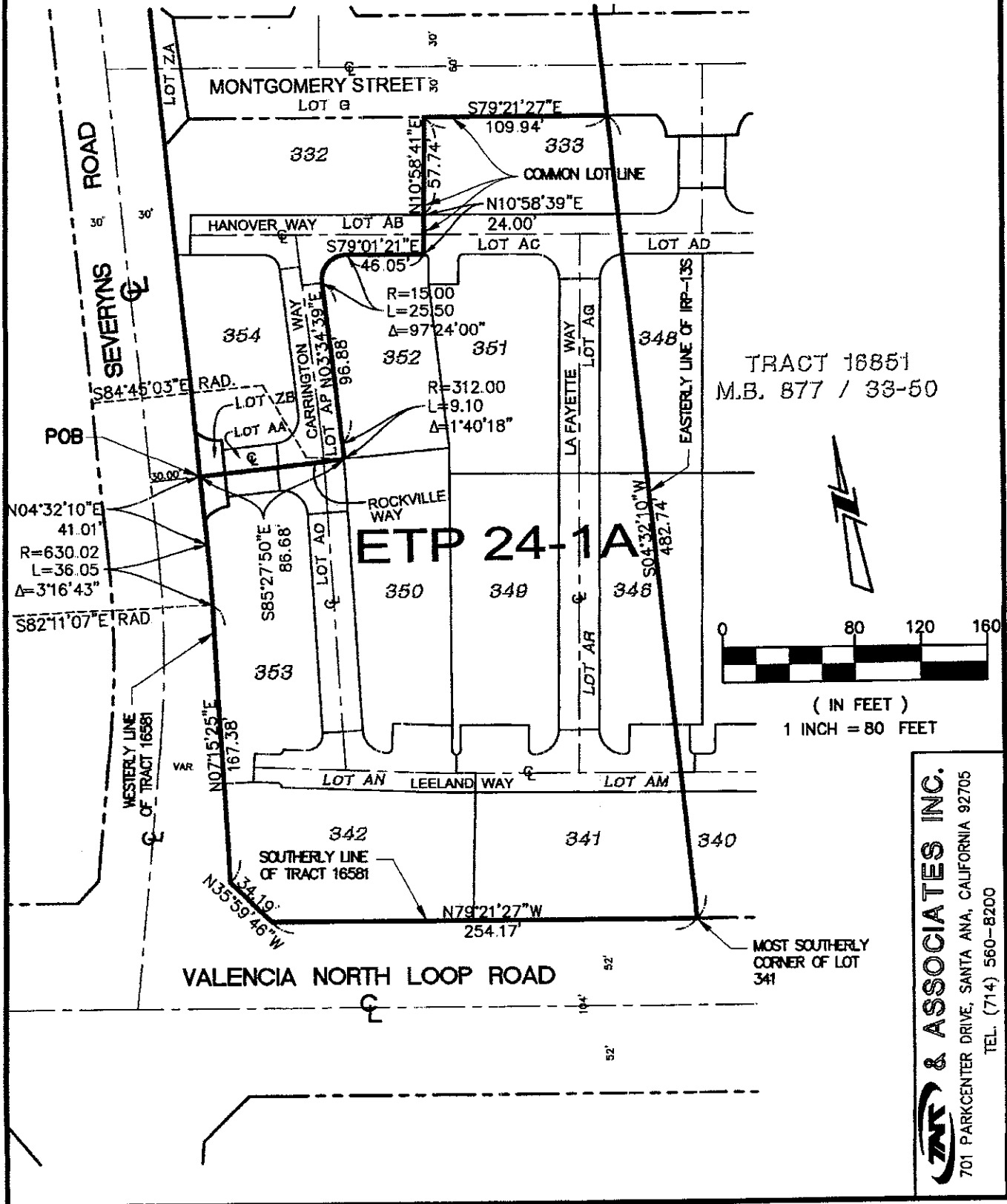
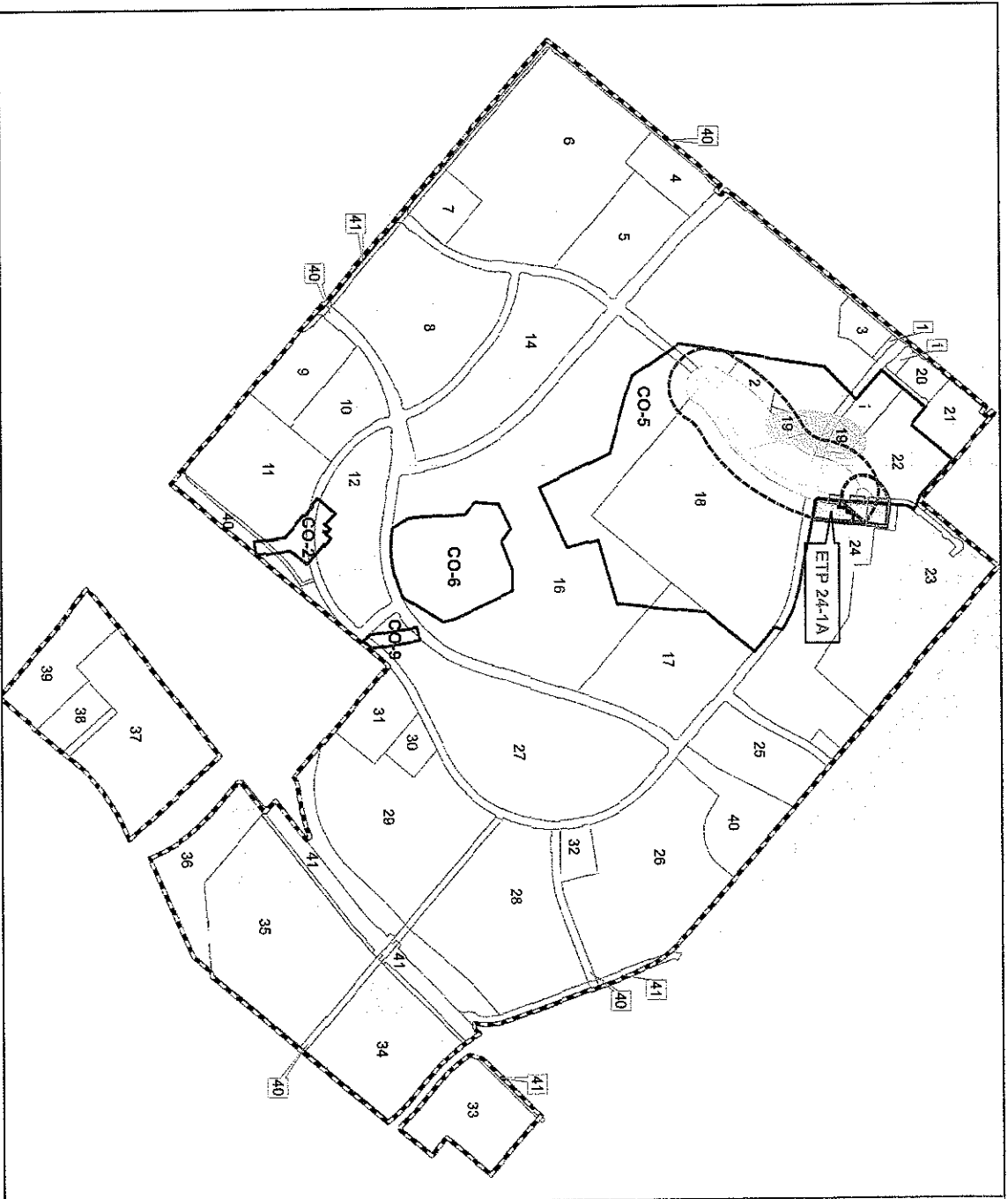


EXHIBIT B1

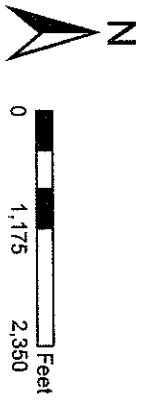
VICINITY MAP



Legend

- Former MCAS Tustin Boundary
- Former Transfer Parcel (ETP) 24-1
- IRP-13S 1,2,3 TCP Groundwater Plume
- IRP-13W TCE Groundwater Plume
- UST Site 222 MTBE Plume
- Cave-Out (CO) Areas/DON Property
- Parcel Boundary
- OU-1A/Area of Institutional Controls
- IRP-13W TCE Plume Approx. 150-Foot Buffer
- IRP-13S (OU-1A)
- IRP-13W (Part of OU-4B)
- Roads
- Parcel Number

Source: Final Environmental Baseline Survey
Former Marine Corps Air Station Tustin, California.
Prepared By Bechtel National, Inc., 2001.

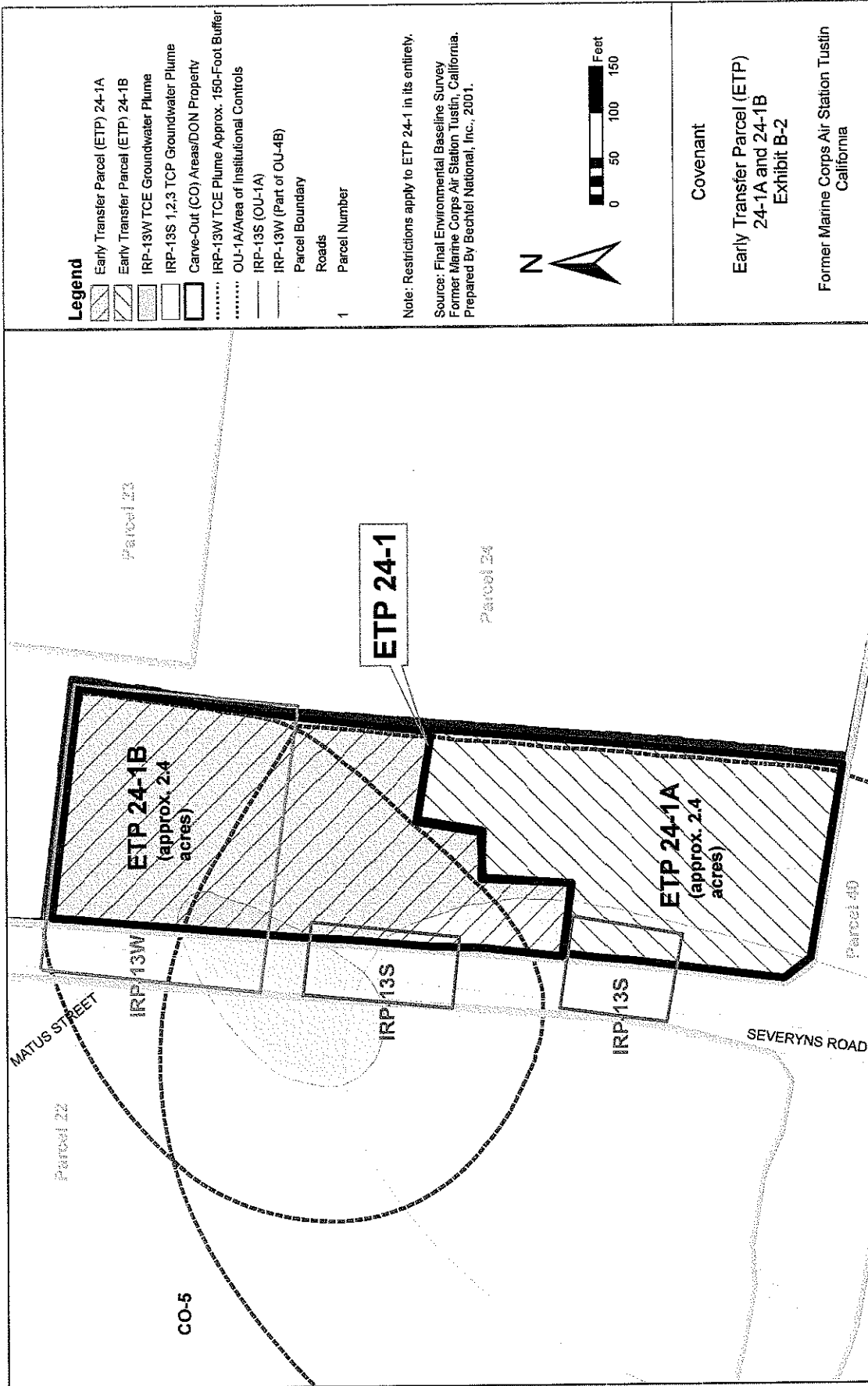


Covenant

Early Transfer Parcel (ETP) 24-1A
Vicinity Map
Exhibit B-1
Former Marine Corps Air Station Tustin
California

EXHIBIT B2

ETP 24-1A AND ETP 24-1B SITE MAP



Note: Restrictions apply to ETP 24-1 in its entirety.
 Source: Final Environmental Baseline Survey
 Former Marine Corps Air Station Tustin, California.
 Prepared By Bechtel National, Inc., 2001.

Covenant

Early Transfer Parcel (ETP)
 24-1A and 24-1B
 Exhibit B-2

Former Marine Corps Air Station Tustin
 California

EXHIBIT C

APPROVED PROJECTS, DESCRIPTIONS/PROCEDURES Dated 20 December 2005



DEPARTMENT OF THE NAVY
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
1455 PRAZEE RD, SUITE 900
SAN DIEGO, CA 92106-4310

11011
Ser BPMOW.rgk/1490
20 Dec 05

Mr. Brendan Horgan
Assistant Project Manager
Lennar
25 Enterprise
Aliso Viejo, CA 92656

Dear Mr. Horgan:

The Navy, in conjunction with the BRAC Cleanup Team, has completed its review of your utility construction proposal through Installation Program Sites (IRP) 13S and 13W within carve-out area (CO) 5 on land leased from the Navy on the former Marine Corps Air Station Tustin. Based on the plans and specifications provided, your improvements are approved subject to the following conditions:

1. Lennar will contact the BRAC office two weeks prior to commencing construction.
2. The special constructions measures identified in "Special Provisions for Work in Contaminated Areas" will be employed during construction in IRP-13S and IRP-13W within CO-5.
3. Alteration, relocation, or disturbance of any wells or pipelines is prohibited without prior government approval. Lennar shall coordinate with the Navy prior to fieldwork to discuss protection measures to prevent disturbance of monitoring wells or any other wells or remediation equipment located on the site.
4. Lennar shall provide submittals of the Environmental Work Plan and the Health Safety Plan 20-days prior to the start of construction in contaminated areas or below historic high groundwater depth.
5. Lennar shall make provisions for the encounter of groundwater and the subsequent removal and final disposition of that groundwater in accordance with federal, state, and local regulations (see Attachment A, Special Provisions for Work in Contaminated Areas).
6. Lennar shall provide contaminant migration prevention following excavation at depths greater than the historic high groundwater elevation (6 feet bgs) within the known plume boundaries.
7. Lennar shall comply with the approved Revised Final Report, Review of Utility Design in Hazardous Substances Plumes, Tustin Legacy Project, Tustin, California, May 2003, as incorporated in CIP No. 7139.

11011
Ser BPMOW.rgk/1490
20 Dec 05

We are enclosing an approved project evaluation review form for your records detailing these requirements. Should you have any questions on this matter please contact Mr. Randy Kiefer at 619-532-0785.

Sincerely,



CHRISTOPHER E. HASKETT
Real Estate Contracting Officer

Enclosure 1. Lennar Utility Project Environmental Review Form

ERRATA SHEET

PROJECT ENVIRONMENTAL EVALUATION UTILITY CONSTRUCTION (LENNAR) THROUGH A PORTION OF CARVE-OUT 5 AND IRP-13S AND IRP 13-W WITHIN CO-5 AT FORMER MARINE CORPS AIR STATION (MCAS) TUSTIN, CALIFORNIA

**Date: November 29, 2005
PERF Number: 001Rev3**

Section 4. Current Environmental Clean Up Program

This section incorrectly references the following in the first and last line of the paragraph under the sub-heading IRP-13W:

Final Record of Decision/Remedial Action Plan Operable Unit 4A, Former Marine Corps Air Station Tustin California, November 2004.

The correct reference is:

Draft Feasibility Study Report For Operable Unit 4B, Former Marine Corps Air Station Tustin, California, August 2005.

Date: November 29, 2005

PERF Number: 001Rev3

**PROJECT ENVIRONMENTAL EVALUATION UTILITY CONSTRUCTION (LENNAR)
THROUGH A PORTION OF CARVE-OUT 5 AND IRP-13S AND IRP-13W WITHIN CO-5
AT FORMER MARINE CORPS AIR STATION (MCAS) TUSTIN, CALIFORNIA**

AFFECTED AREAS/CARVE-OUTS: A portion of Carve-Out 5 (CO-5) and Installation Restoration Program 13W (IRP-13W) and IRP-13S within CO-5. The locations of the portion of CO-5, IRP-13W and IRP-13S are shown on Figure 1 - Areas of Proposed Construction.

1. Purpose:

This evaluation is required by the 11 March 2003 Lease in Furtherance of Conveyance (LIFOC) between the United States of America and Marble Mountain Partners, LLC. Paragraph 8.1 of the LIFOC specifically prohibits any construction, demolition, alteration, additions, excavations, or improvements to the premises without the prior written consent of the Government.

In addition, the LIFOC incorporates the conditions indicated in the April 26, 2002 Finding of Suitability to Lease 3 (FOSL 3), which requires Base Realignment and Closure Cleanup Team (BCT) review and approval in the event that a project involves activities that are restricted due to environmental concerns. The environmental concerns for the property are identified in FOSL 3.

2. Use Restrictions:

FOSL Sections 4.1, 4.2, 4.7, 4.8, 4.9, 4.12, and 4.16 address the specific environmental conditions that are relevant to this project. Although each section of the FOSL addresses a different environmental issue, each of the relevant sections except 4.7, 4.8, 4.9 and 4.16, contains the same use restriction, which is that the lessee shall not conduct any subsurface excavation, digging, drilling or other disturbance of the surface within the entire CO area without the prior approval of the Navy and the regulatory agencies. Sections 4.7 and 4.9 restrict building occupancy based on possible asbestos containing material and lead based paint hazards respectively. Section 4.8 is an indoor air quality restriction. Section 4.16 requires that monitoring wells, surface water gauging locations and their associated equipment shall not be altered, disturbed or removed without the prior review and approval of the DON and regulatory agencies.

3. Proposed Project:

In conjunction with their redevelopment Lennar Communities is planning to install underground utilities in CO-5 near Severys Road in the southwestern portions of IRP-13W and IRP-13S, the northern section of IRP-13W, the western section of IRP-13W, and the northern section of IRP-13S as shown on Figure 2 – Location of Proposed Utilities & Areas of Contamination. Underground utility installation in this area is anticipated from October 2005 through December 2006. Design drawings indicate the deepest vertical extent of grading is approximately 12 feet below ground surface (bgs), which is above a semi-confined groundwater-bearing zone which can range between a depth of approximately 16 - 20 feet. Groundwater levels in wells are currently approximately 15 feet bgs, indicating semi-confining conditions. The historic high groundwater depth at this location is documented in the Navy report, Quarterly Groundwater Progress Monitoring Data Summary Operable Unit 1A (13S) Third Quarter 2004, dated December 2004. This report documents high groundwater depths of approximately 6 feet below ground surface at the locations of existing monitoring wells inside IRP13S. A conceptual cross-section illustrating the proposed underground

utility corridor with respect to subsurface features is presented in Figure 3. As shown on Figure 3, there is a low potential that groundwater will be encountered during grading activities because the vertical depth of grading will not exceed approximately 12 feet. These ground-disturbing activities are restricted under FOSL 3 sections 4.1, 4.2, and 4.12 as noted above. Based on the findings presented in the Site Assessment Report (Shaw Environmental, 2003) there is a low potential for grading activities to encounter soil and/or groundwater contamination.

Section 4.16 of the FOSL, requiring monitoring wells and their associated equipment remain in place, is not an issue with this proposal in that all remediation system equipment, piping and groundwater monitoring and extraction wells associated with the affected sites shall be protected in place. Although there is an indoor air quality restriction in effect for this site, implementation of the project raises no indoor air quality issues because the project does not require access or occupancy of any buildings.

Because all the buildings that were within this area were demolished, FOSL Sections 4.7, 4.8, and 4.9 do not apply.

4. Current Environmental Clean Up Program:

IRP-13S consists of two Areas of Concern: ST-72B, an inactive vehicle maintenance facility, and MWA-18, an inactive wash area. 1,2,3-trichloropropane (1,2,3-ICP) and trichloroethene (TCE) have historically been detected in soil and groundwater at IRP-13S (Final Basewide Environmental Baseline Survey, Marine Corp Air Station, California, March 2001). The contaminant of concern during this construction project is 1,2,3-ICP.

Three groundwater-monitoring wells at IRP-13S (IS72MW01U, IS72MW01S, and IS72MW01D) and two groundwater-monitoring wells at Severyns Road and North Loop Road (Valencia Avenue) (IS72MW17S and IS72MW17D) are located within the project area. These wells shall be protected from damage or disturbance during grading work.

IRP-13W consists of two former disposal areas. In 1997, a removal action was conducted to excavate shallow contaminated soil (Final Record of Decision/Remedial Action Plan Operable Unit 4A, Former Marine Corp Air Station Tustin California, November 2004). Confirmation samples were collected and analyzed for polynuclear aromatic hydrocarbons (PAHs), petroleum hydrocarbons, lead, and polychlorinated biphenyls (PCBs). Based on the confirmation sampling results, which indicated the concentrations in remaining soils were less than the respective U.S. Environmental Protection Agency Preliminary Remediation Goals for PAHs, lead, and PCBs, No Further Action was recommended for soil at IRP-13W (Final Record of Decision/Remedial Action Plan Operable Unit 4A, Former Marine Corp Air Station Tustin California, November 2004).

Based on the 2003 shallow groundwater investigation findings presented in the OU-4 Technical Memorandum, further evaluation of groundwater at IRP-13W will be conducted under a feasibility study. The surface soil was concurred for no further action.

5. Potential Project Impacts on Environmental Clean up Program:

IRP-13S - The Navy executed a ROD in December 2004 to document selection of hydraulic containment of groundwater with soil hot spot removal as the final remedy at IRP-13S. The soil hot spot removal action was completed for MWA-18 which is located in the southwestern portion of the site immediately east of Severyns Road and approximately 100 feet north of the proposed North Loop Road (Valencia Avenue), see Figure 2. Excavation at MWA-18 was completed for soils with TCE greater than 400 micrograms per kilogram ($\mu\text{g/kg}$). Although the preliminary soil report submitted to the regulatory agencies in July 2005 indicated that hot spot removal was successful in reducing groundwater contaminate levels to an acceptable level, no grading or disturbance of the soil in the removal action excavation area will occur as a result of this project. However, the contaminants of concern during this construction project are 1,2,3-TCP and ICE, therefore, the contractor will implement the "Special Provisions for Work in Contaminated Area" that is part of the plans and specifications for construction that address utility installation within potentially contaminated areas.

The soil at ST-72 has been reported to not pose an unacceptable risk to human health however removal was performed to reduce groundwater remediation duration (Final Record of Decision/Remedial Action Plan Operable Unit 4A, Former Marine Corp Air Station Tustin California, November 2004).

Three groundwater-monitoring wells at IRP-13S (IS72MW01U, IS72MW01S, and IS72MW01D) and two groundwater-monitoring wells at Severyns Road and North Loop Road (Valencia Avenue) (IS72MW17S and IS72MW17D) are located within the project area. These wells shall be protected from damage or disturbance during grading work.

IRP-13W - On 3 January 2005, the Navy received regulatory concurrence in its OU-4A ROD that provides that no further action is required for soils at IRP-13W. Although water remediation has not been completed construction of the project will not interfere with site clean up provided the contractor complies with the "Special Provisions for Work in Contaminated Area" that is part of the plans and specifications for construction that address utility installation within potentially contaminated areas.

6. Conditions for Approval

The project may be approved, provided that the following conditions are met:

1. Lennar will contact the BRAC office two weeks prior to commencing construction.
2. The special constructions measures identified in "Special Provisions for Work in Contaminated Areas" will be employed during construction in IRP-13S and IRP-13W within CO-5.
3. Alteration, relocation, or disturbance of any wells or pipelines is prohibited without prior government approval. Lennar shall coordinate with the Navy prior to fieldwork to discuss protection measures to prevent disturbance of monitoring wells or any other wells or remediation equipment located on the site.
4. Lennar shall provide submittals of the Environmental Work Plan and the Health Safety Plan 20-days prior to the start of construction in contaminated areas or below historic high groundwater depth.

5. Lennar shall make provisions for the encounter of groundwater and the subsequent removal and final disposition of that groundwater in accordance with federal, state, and local regulations (see Attachment A, Special Provisions for Work in Contaminated Areas).
6. Lennar shall provide contaminant migration prevention following excavation at depths greater than the historic high groundwater elevation (6 feet bgs) within the known plume boundaries.
7. Lennar shall comply with the approved Revised Final Report, Review of Utility Design in Hazardous Substances Plumes, Tustin Legacy Project, Tustin, California, May 2003, as incorporated in CIP No. 7139.

7. Attachments:

Figure 1 – Areas of Proposed Construction

Figure 2 – Location of Proposed Utilities and Areas of Contamination

Figure 3 - Conceptual Cross Section of Underground Utility Installation

Attachment A – Special Provisions for Work in Contaminated Area

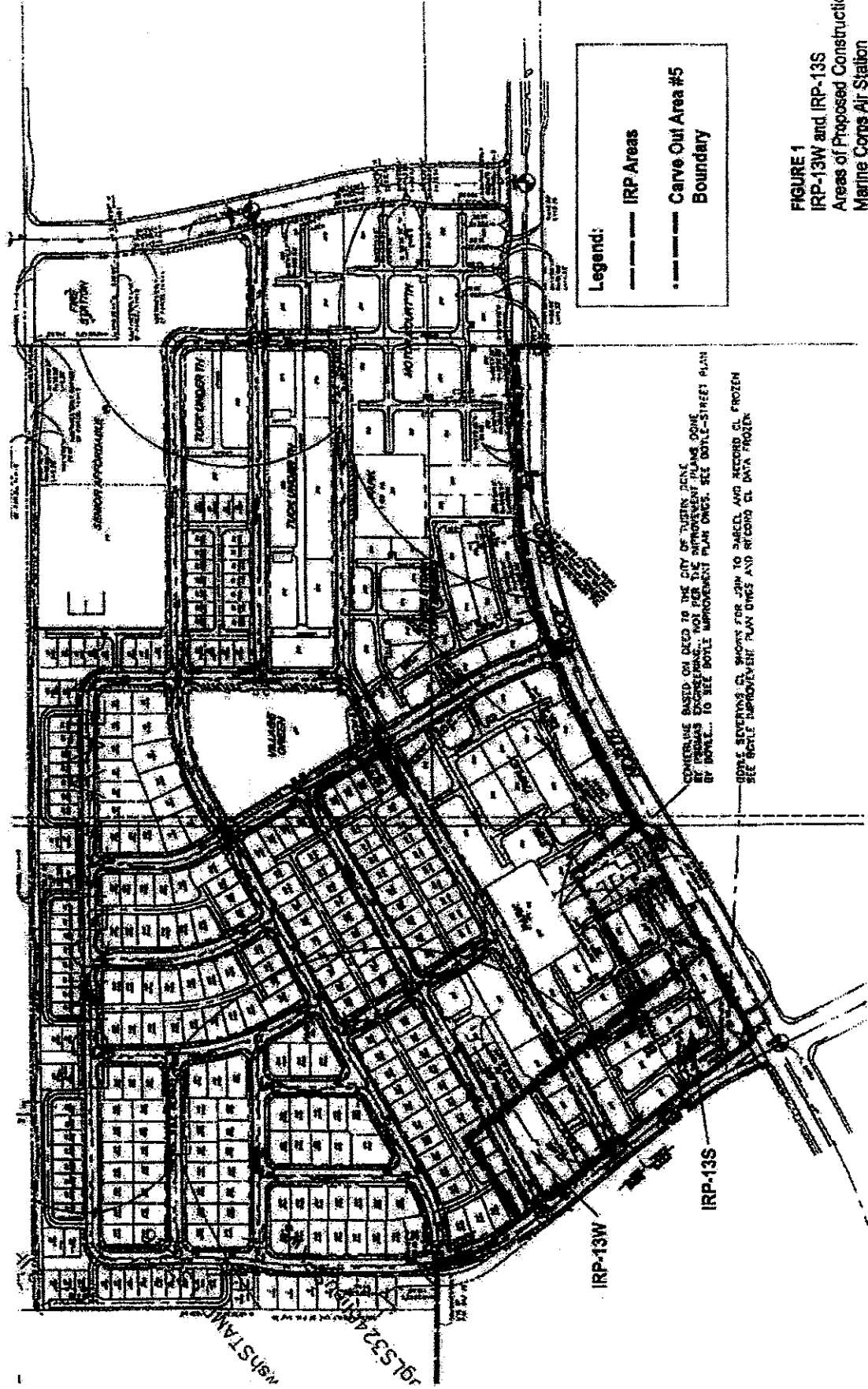
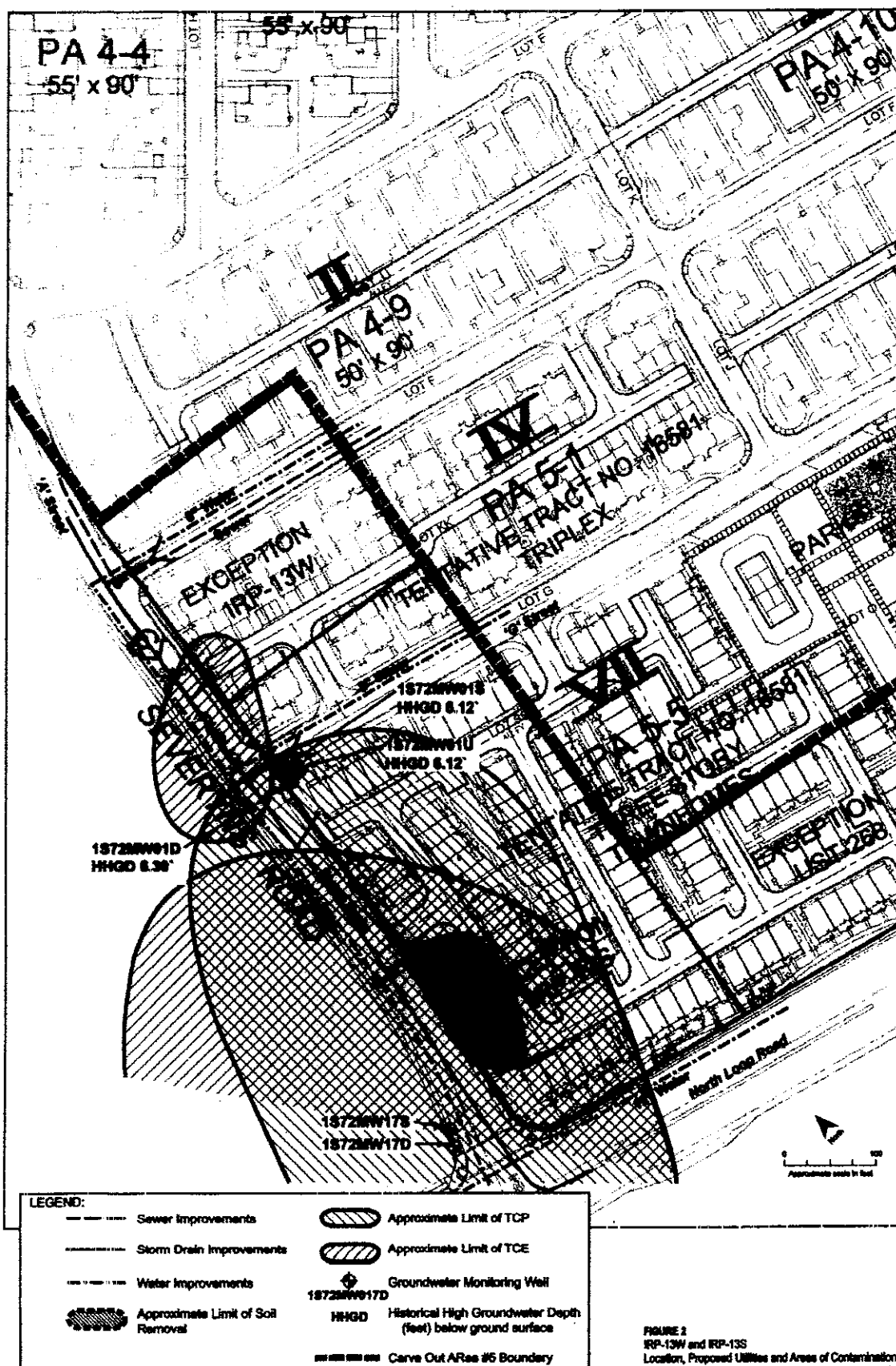
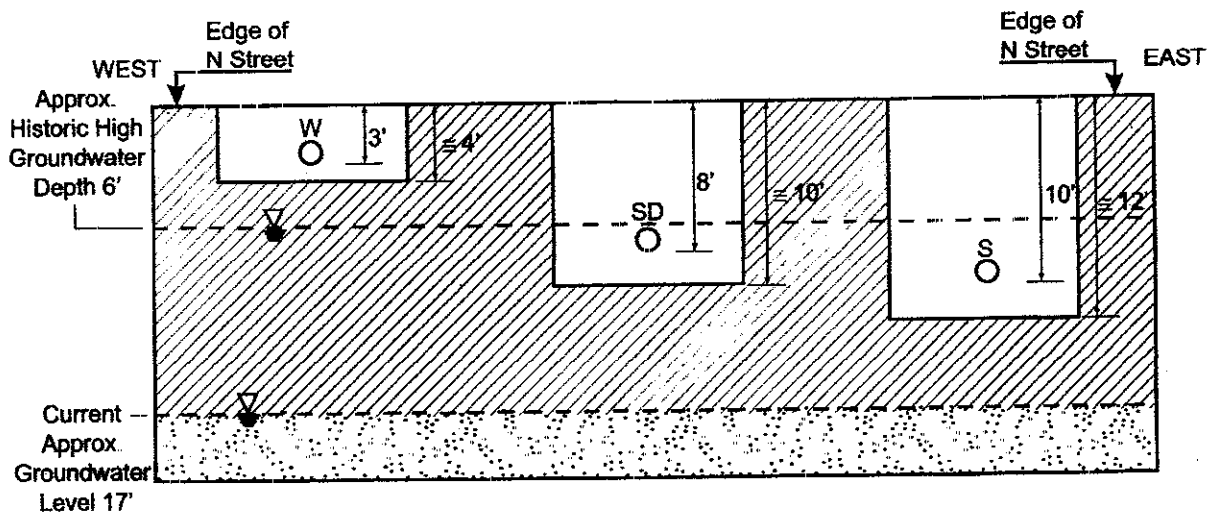


FIGURE 1
 IRP-13W and IRP-13S
 Areas of Proposed Construction
 Marine Corps Air Station
 Tustin, California
CH2MHILL





Legend

Not to Scale

- First Groundwater
- Underground Utility
- Predominantly lean clay
- Sand, clay, and silt
- W Water Line
- SD Storm Drain
- S Sewer Line

FIGURE 3
 Conceptual Cross Section of
 Underground Utility Installation
 Marine Corps Air Station
 Tustin, California

CH2MHILL

ATTACHMENT A

**SPECIAL PROVISION FOR WORK
IN CONTAMINATED AREAS**

ATTACHMENT A
SPECIAL PROVISION FOR WORK
IN CONTAMINATED AREAS

1. General

The Contractor shall comply with these special provisions when performing construction activities within the Areas of Institutional Controls, defined herein as Contaminated Areas.

As used in this Section, Contaminated Areas means those Areas of Institutional Control associated with the 1,2,3-trichloropropane (1,2,3-TCP), and trichloroethane (TCE) plumes.

Based on the depth of the TCP and TCE plumes as defined by Navy Documents, it is anticipated that none of the proposed utilities will be affected by the presence of TCP or TCE, nor will any special provisions be required for materials and/or methods of construction in this area on condition that construction occurs above the historic high water depth. However, if construction in this area or method of installation is below the historic high groundwater depth or if groundwater is encountered during construction, the Engineer shall prescribe applicable sections of the Special Provisions that are included herein as required.

Boundaries of the Area of Institutional Control associated with the 1,2,3-TCP plume are delineated below:

- a. The western boundary of the Area of Institutional Control of the 1,2,3-TCP plume on Valencia North Loop Road is located at Street Sta. 12+00.
- b. The eastern boundary of the Area of Institutional Control of the 1,2,3-TCP plume on Valencia North Loop Road is located at Street Sta. 35+00.
- c. The northern boundary of the Area of Institutional Control of the 1,2,3-TCP plume on Armstrong Avenue is located at Street Sta. 76+00 (Severyns Road).
- d. The southern boundary of the Area of Institutional Control of the 1,2,3-TCP plume on Armstrong Avenue is located at Street Sta. 48+50.
- e. The approximate vertical limit of the 1,2,3-TCP plume within the Area of Institutional Control along Valencia North Loop Road and Armstrong Ave. is El. 45 to El. -10.

Based on the limits of the 1,2,3-TCP and TCE plumes as defined by the Navy Documents, it is anticipated that the storm drain and the sanitary sewer may be affected by the presence of historic groundwater associated with the 1,2,3-TCP and TCE groundwater plumes. However, if 1,2,3-TCP and or TCE is encountered at elevations shallower than the historic high groundwater during construction, the Engineer shall prescribe applicable sections of the Special Provisions that are included herein as required.

Boundaries of the Area of Institutional Control associated with the TCE plume are delineated below:

- a. The western boundary of the Area of Institutional Control of the TCE plume on North Loop Road (Valencia Avenue) is located at Street Sta. 36+00.

- b The eastern boundary of the Area of Institutional Control of the TCE plume on North Loop Road (Valencia Avenue) is located at Street Sta. 42+00.
- c Although the northern limits of the Area of Institutional Control of the ICE plume extends into the alignment of North Loop Road, the source of pollution is south of the alignment and plume is traveling in a southerly direction. According to the Navy Reports, there is no detectable contamination under the alignment of North Loop Road at this location (Draft Feasibility Study Report for Operable Unit 4B, Former Marine Corp Station Tustin, California, August 2005).

Based on the limits of the TCE plume as defined by the Navy Documents, it is anticipated that none of the proposed utilities will be affected by the presence of TCE, nor will any special provisions be required for materials and/or methods of construction in this area on condition that construction occurs above the historic high groundwater depth. However, if construction in this area or method of installation is below the historic high groundwater depth or if groundwater is encountered during construction, the Engineer shall prescribe applicable sections of the Special Provisions that are included herein as required.

Protection of Existing Remediation Systems

The Contractor will be responsible for protecting existing remediation systems and minimize disruption to their continued operation during construction. This includes the groundwater recovery systems associated with the 1,2,3-TCP plume and any other systems.

2. Environmental, Health and Safety Requirements in Contaminated Areas

Description

The Contractor shall comply with the environmental, health, and safety requirements of this Section and all applicable federal, state, and local environmental, health, and safety laws, regulations, ordinances, and permits when performing construction activities in Contaminated Areas.

Definitions

CCR: California Code of Regulations

CFR: Code of Federal Regulations

References

- 29 CFR § 1910.120 Occupational Safety and Health Standards – Hazardous Waste Operations and Emergency Responses
- 29 CFR § 1926.65 Safety and Health Regulations for Construction – Hazardous Waste Operations and Emergency Response
- 8 CFR § 5192 Hazardous Waste Operations and Emergency Response

Submittals

The Contractor shall submit an Environmental Work Plan, as specified in this Section, to the designated Navy representative at least 20 days prior to commencement of construction

activities. Contractor will be required to incorporate review comments obtained from the Navy and regulatory agencies. Contractor will not commence work until the Environmental Work Plan has been approved by the designated Navy representative. A site-specific Health and Safety Plan (HASP) shall be submitted to the designated Navy representative for record purposed at least 20 days prior to commencement of construction activities.

The Environmental Work Plan and the HASP shall be printed on 8-½-inch by 11-inch paper. Each document shall be bound separately in a 3-hole, D-ring, loose leaf, vinyl-covered presentation binder with labeled, tabbed dividers. Include a table of contents noting all sections, figures, tables, and appendices. Drawings or diagrams bound into the manuals shall be 8-½ inches by 11 inches or 11 inches by 17 inches, folded to 8-½ inches by 11 inches. Larger drawings shall be folded separately, place into plastic envelopes, and bound into the manuals.

Environmental Work Plan

The Contractor shall prepare and submit an Environmental Work Plan that documents his approach to work in Contaminated Areas (i.e., work within horizontal limits of Contaminated Areas. Procedures and techniques presented in the Environmental Work Plan shall conform to the requirements of the contract documents and all applicable laws, regulations, ordinances, and permits. At a minimum, The Environmental Work Plan shall include the following information:

- a. Sequence and schedule for work in contaminated areas.
- b. Sampling and analytical procedures for potentially contaminated soils and liquids; and provisions must be included for notifying the Navy if contaminated soil or groundwater is encountered.
- c. Contingency plan for identifying contamination beyond the identified Contaminated Areas
- d. Procedures for segregating, storing and handling contaminated soils, debris, and liquids
- e. Processes to be used for pretreatment of contaminated liquids
- f. Processes to be used for decontamination of debris
- g. Procedures for disposal of contaminated soils, debris, and liquids
- h. Vehicle and equipment decontamination procedures
- i. Locations of contaminated waste piles and/or containers
- j. Location(s) of vehicle, equipment, debris, and personnel decontamination area(s)
- k. Location of wastewater treatment system
- l. On-site, local, and regional haul routes for transportation of contaminated materials
- m. Procedures for preventing the spread of contamination
- n. Proposed method of protecting waste piles from runoff/runoff

Health and Safety Program

The Contractor shall be responsible for developing, maintaining, and enforcing safety procedures at the site. A written safety and health program shall be developed by the Contractor in accordance with 8 CCR §5192(b) to identify, evaluate, and control safety and health hazards and provide for emergency response.

All necessary precautions for the safety of permanent and temporary employees, subcontractors, and site visitors shall be implemented by the Contractor, and all protective equipment and devices necessary to prevent damage, injury, and loss shall be provided by the Contractor.

The Contractor shall provide a qualified and experienced safety representative at the site whose responsibilities shall be prevention of accidents and maintenance and enforcement of safety procedures including, but not limited to, scheduling air sampling, calibration of sampling equipment, and evaluation of soil or other contaminated materials sampling results.

Site-Specific HASP

The Contractor shall be solely responsible for developing, implementing, and enforcing a site-specific HASP. The HASP shall be prepared by a qualified person, as defined in 29 CFR §1910.120(a) and 8 CCR §5192(a), in accordance with requirements of CFR §1910.120(b) and 8 CCR §5192(b). All employees shall be required to read the HASP, sign a compliance agreement, and abide by all provisions of the HASP.

The site-specific HASP, which must be kept on site, shall address the safety and health hazards of each phase of site operation and include the requirements and procedures for employee protection. At a minimum, the HASP shall include the following information:

- a. List of site safety officers and other personnel responsible for HASP implementation including documentation that demonstrates proper employee training
- b. Emergency information, including phone numbers, addresses, and directions to the local hospital, fire department, police, and paramedics
- c. Physical description of the site and site conditions including site-specific data pertaining to known and potential physical, chemical and biological hazards
- d. Project-specific description of the work including a safety and health risk or hazard analysis for each task
- e. Controls that will be implemented to mitigate each hazard including administrative and engineering controls and personal protective equipment (PPE) to be used by employees
 1. For activities that involve no hazardous material contact, primary hazards are physical hazards associated with construction, trenches, and heavy equipment
 2. For activities that involve direct contact or potential for contact with hazardous material, primary hazards include the following:

- i. Heat stress
 - ii. Inhalation of contaminants
 - iii. Skin or eye contact with contaminants
 - iv. Ingestions of contaminants
- f. Controls that will be implemented to mitigate each hazard including administrative and engineering controls and personal protective equipment (PPE) to be used by employees.
- g. Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation
- h. Description of personal protective equipment (PPE) to be supplied for each level of protection and action levels proposed for PPE upgrades for various hazardous tasks
- i. Personnel and equipment decontamination procedures to be employed on various levels of protection
- j. Site control plan, identifying decontamination areas, ingress and egress areas, and exclusion zone(s)
- k. Emergency response procedures including response actions to control releases of contaminants
- l. Training and certification requirements for site personnel assigned to each task in conformance with 8 CCR §5192(e)
- m. Locations of confined spaces, confined space entry procedures, and confined space entry restrictions
- n. List of hazardous substances and Material Safety Data Sheets (MSDS) for each hazardous substance
- o. Accident/incident investigation and recordkeeping procedures and forms.

Health and Safety Training

All personnel, including subcontractors and visitors, who enter and exclusion zone, defined in the site-specific HASP, shall be qualified to work with hazardous materials as required by 8 CCR §5192(e).

Personnel who enter the site shall be adequately trained and thoroughly briefed on emergency response procedures and potential health and safety hazards identified in accordance with 8 CCR §5192(b). At a minimum, site-specific training shall include the following:

- a. Pre-job health and safety conference to be held before the start of actual work that includes the designated Engineering representative, the Contractor, employees, and employee representatives. Conference topics shall include a discussion of the employer's safety and health program and the means, methods, devices, processes, practices, conditions, or operations which the employer intends to use in providing a safe and healthy work place.

- b. Pre-entry briefings to be held prior to initiating any site activity and at such other times as necessary to ensure that employees, subcontractors, and site visitors are apprised of applicable requirements in the site-specific HASP. The training shall thoroughly cover the following:

1. Names of personnel and alternates responsible for site safety and health
2. Safety, health and other hazards present on the site
3. Work practices that minimize risk from hazards
4. Safe use of engineering controls and equipment
5. Use, care, and limitations of PPE
6. Decontamination procedures
7. Emergency response plan
8. Spill containment procedures
9. Confined space entry

In addition, employees who are responsible for responding to emergency situations shall be trained in how to respond to any anticipated emergency conditions.

At least one member of each crew shall be trained in first aid, cardiopulmonary resuscitation, and blood borne pathogen protection.

The contractor shall be responsible for coordinating any exchange of MSDS or other hazard communication information required to be exchanged among employers at the site.

Personal Protective Equipment

The Contractor shall furnish and maintain adequate PPE for use by its employees and site visitors. Contaminated PPE generated during site activities shall be disposed in accordance with applicable requirements in Section 3 "Management, Transportation, and Disposal of Contaminated Materials." Provide suitable containment for contaminated PPE.

Emergency Responses

In emergencies affecting the safety or protection of persons or property at the site or adjacent thereto, the Contractor, without special instruction or authorization from the Engineer, is obligated to act to prevent threatened damage or loss. The Contractor shall promptly notify the Engineer in writing if the Contractor believes that any significant changes in the work have been caused by its response to such an emergency.

Personnel and Equipment Decontamination

Personnel and equipment that come in contact with contaminated soil, debris, or groundwater shall be decontaminated prior to moving into clean areas, or handling clean fill, or leaving the project site. The Contractor shall supply all equipment, materials, and personnel required to construct and operate all vehicle, equipment, and personnel decontamination facilities.

Shower and hand washing facilities and an emergency eye wash station shall be furnished and installed in the personnel decontamination facility to accommodate the Contractor's employees and subcontractors and any site visitors.

Decontamination facilities shall be designed, located, constructed, and operated in a manner that prevents cross-contamination of areas and materials considered clean.

Decontamination facilities shall be capable of capturing all overspray (water, mist, dust) and collecting and transferring all decontamination fluids. Decontamination fluids shall be collected and managed in accordance with requirements for contaminated liquids in Section 3 "Management, Transportation, and Disposal of Contaminated Materials."

Decontamination facilities shall be washed down regularly to remove any buildup of sediments. Sediments shall be collected and handled in accordance with requirement for contaminated soils in Section 3 "Management, Transportation, and Disposal of Contaminated Materials."

Equipment and miscellaneous items shall be decontaminated until interior and exterior surfaces are visibly free of sediment, liquid, and wastes.

The Contractor shall furnish and install backflow preventers if decontamination equipment or washing facilities connect directly to potable water system.

The Contractor shall regularly inspect decontamination facilities and promptly repair any damages to the facilities.

Storm Water Pollution Prevention

The Contractor shall collect and store storm water contaminated by contact with soils or groundwater that contain hazardous waste in containers that meet requirements specified in Section 3 "Management, Transportation, and Disposal of Contaminated Materials."

Dispose of storm water contaminated by contact with materials that contain hazardous waste in accordance with requirements in Section 3 "Management, Transportation, and Disposal of Contaminated Materials."

Promptly excavate and dispose of soil contaminated by storm water runoff that contains hazardous waste in accordance with Section 3 "Management, Transportation, and Disposal of Contaminated Materials."

3. Management, Transportation, and Disposal of Contaminated Materials

Description

This work shall consist of properly classifying, storing, treating, transporting, and disposing of soils, slurries, sediments, groundwater, decontamination water, storm water, and other residual materials that contain hazardous waste or petroleum contaminants.

The Contractor shall conduct operations in accordance with the Environmental Work Plan to ensure that contaminated materials are properly identified, segregated, transported and disposed in accordance with all applicable regulations.

Further, the work shall be performed in a manner that does not allow for spreading of contaminated materials via air, groundwater, surface water, or on equipment leaving the work area.

Definitions

RCRA: Resource Conservation and Recovery Act

References

U.S. EPA SW-856	Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Vol. 1
Title 22 CCR Chapter 11	Identification and Listing of Hazardous Waste
Title 22 CCR Chapter 12	Standards Applicable to Generators of Hazardous Waste
Title 22 CCR Chapter 13	Standards Applicable to Transporters of Hazardous Waste
Title 22 CCR Chapter 14	Standards for Owners and Operators of Hazardous Waste Transfer, Treatment Storage, and Disposal Facilities
Title 22 CCR Chapter 15	Interim Status Standards for owners and Operators of Hazardous Waste Transfer, Treatment, Storage, and Disposal Facilities
Title 22 CCR Chapter 18	Land Disposal Restrictions
Title 40 CCR Part 261	Identification and Listing of Hazardous Waste
Title 40 CCR Part 262	Standards Applicable to Generators of Hazardous Waste
Title 40 CCR Part 263	Standards Applicable to Transporters of Hazardous Waste
Title 40 CCR Part 264	Standards for Owners and Operators of Hazardous Waste Treatment, and Disposal Facilities
Title 40 CCR Part 265	Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
Title 40 CCR Part 268	Land Disposal Restrictions

Submittals

Submit the following to the designated Navy representative unless indicated otherwise herein.

- a. Name, address, phone number, and U.S. Environmental Protection Agency (U.S. EPA) identification number and/or Department of Toxic Substances Control (DTSC) registration number for each proposed off-site transporter of hazardous waste
- b. Name, address, phone number, and U.S. EPA identification number or State identification and/or permit number for each proposed transfer storage, treatment, or disposal facility.
- c. Copies of the waste manifest, signed by the generator, transporter(s), and disposal facility, for each shipment of hazardous waste or nonhazardous waste
- d. Copies of the waste manifest, signed by the generator, transporter(s), and disposal facility, for each shipment of hazardous waste or nonhazardous waste

- e. Copies of the certificate of disposal and load or weight ticket for each hazardous waste or nonhazardous waste shipment
- f. Certified copies of analytical data reports and the resultant waste classification and waste code for each waste shipment
- g. Proposed testing laboratory qualifications that demonstrate compliance with the minimum requirements specified herein.
- h. Proposed testing laboratory's quality control/quality assurance manuals.
- i. Copies of correspondence, reports, permits, and other documents provided to, or received from, regulatory agencies.
- j. Submit certification of calibration from the supplier for each flow meter

Hazardous Waste Identification

Soils and groundwater within Contaminated Areas may contain 1,2,3-TCP. 1,2,3-TCP is known to the State of California to cause cancer or reproductive toxicity. Consequently, under provision of Title 22 CCR §66261.24, soil, groundwater, or other media contaminated with 1,2,3-TCP may be a non-RCRA hazardous waste.

Sample and analyze wastes upon generation in accordance with applicable requirements in SW-846. Properly classify wastes upon generation in accordance with Title 40 CFR Part 261, Title 22 CCR Chapter 11 and other applicable laws, regulations, and guidance documents.

Testing Laboratory Services

The Contractor shall be responsible for all laboratory services related to waste classification, treatment, and disposal. All services shall be conducted by an independent, commercial testing laboratory that meets the following requirements:

- a. Participant in a performance evaluation study within the last 6 months.
- b. Subject to an independent, external audit on a yearly basis
- c. Conducts annual internal audits

The Engineer reserves the right to contact and to visit analytical laboratories.

Hazardous Waste Storage

Store waste materials on-site no longer than necessary to affect off-site transportation and disposal in accordance with the contract documents. Protect temporary soil or debris stockpiles from rain by covering with a waterproof membrane. Do not place soil over monitoring wells or piezometers, utility line manholes, or any other potential route for water to migrate to the subsurface.

Store hazardous wastewater and nonwastewater in containers in accordance with Title 22 CCR Chapter 12, Article 3. Provide containers in good condition free of cracks, rust, or leads. Container materials shall be compatible with wastes to be stored within the container. Containers shall be equipped with covers that fit tightly to exclude rain water and to minimize airborne dispersal of wastes. Inspect, maintain, and repair containers.

Comply with 90-day time limit for on-site accumulation of hazardous waste in Title 22 CCR Chapter 12, Article 3. Clearly mark the date upon which each period of accumulation begins on each container.

Containers holding hazardous waste shall always be closed during transfer and storage, except when it is necessary to add or remove waste. Containers shall not be opened, handled, transferred or stored in a manner which may rupture the container or cause it to leak.

Waste Manifest

Complete waste manifests in conformance with Title 22 CCR Chapter 12, Article 2 and sign the appropriate lines of any required waste manifest forms for any class of waste transported from the site, certifying proper classification, packaging, labeling, and shipping of the waste. The Contractor shall be solely responsible for signing the waste manifest.

The Contractor shall not qualify its signature on the waste manifest in any way.

Off-Site Transportation

Before transporting hazardous waste off-site, comply with applicable shipping requirements in Title 49 CFR Parts 172, 173, 178, and 179; Code of Federal Regulations, Title 40, Part 263, and Title 22 CCR Chapter 13.

Package the waste in accordance with applicable Department of Transportation (DOT) regulations on packaging under Title 49 CFR Parts 173, 178, and 179. Label and mark each package in accordance with the applicable DOT regulations on hazardous materials under Title 49 CFR Part 172.

Stage empty transport vehicles only within areas designed by the Engineer. Do not stage loaded trucks on-site. Trucks shall leave the site immediately after loading. Do not allow trucks to park on public roads in a manner that disrupts vehicular traffic.

Place covers on open transport vehicles or containers immediately after loading in a manner that sheds rainwater and prevents release of dust. Covers shall be fabricated from water-resistant material with sufficient strength to withstand wind loads during transit. Covers shall have tie-downs or other restraint mechanisms necessary to securely fasten them to the truck or container.

Clean vehicles, containers, and construction equipment until interior and exterior surfaces are visibly free of soils, sediment, liquids, and wastes. Soil or wastes that adhere to the undercarriage, tires, or sides of vehicles and equipment shall be completely removed prior to leaving Contaminated Areas. Sediments and soil removed as a result of decontamination shall be considered contaminated materials.

Inspect trucks, containers, and construction equipment before they exit the site. At a minimum, check the following items:

- a. Wheels and undercarriage of each vehicle shall be inspected to ensure that no visible soil or waste adheres to any surface

- b. Tailgates shall be inspected to ensure that they are tightly sealed. Covers shall be inspected to ensure that they are securely fastened and no holes are present.
- c. Tank trucks shall be inspected to ensure that fittings are tightly sealed. No drips or leaks of any size shall be allowed from any truck or container.
- d. Ensure that each truck is correctly placarded according to DOT regulations for hazardous materials under Title 49 CFR Part 172, Subpart F.
- e. Ensure that trucks meet applicable state and federal safety standards. The loaded weight of any truck shall not exceed its gross vehicle weight rating.

Permit the Engineer to inspect trucks before they exit the site and remedy any deficiencies identified by the Engineer before the truck or container proceeds.

Control transport vehicles entering and exiting the site to avoid traffic disruptions. Comply with local transportation regulations, ordinances, and restrictions.

Remediate waste spillage in transit in accordance with Title 22 CCR Chapter 12, Article 3 and other applicable federal, state, or local regulations.

Hazardous Wastewater Treatment and Disposal

Contaminated liquids including contaminated groundwater generated during dewatering activities, decontamination fluids, and contaminated storm water shall be treated, if required by permit, and disposed into a sanitary sewer or off-site wastewater treatment facility.

The Contractor shall obtain any permit required to discharge liquids to the storm drainage system from the Water Quality Control Board, Santa Ana Region. Contaminated liquids discharged to the storm drainage system, if any, shall be treated by granular activated carbon adsorption to remove toxic organics to non-detectable concentrations.

Furnish and install a flow meter on each discharge line into the sanitary sewer or storm sewer. Flow meter(s) shall indicate instantaneous flow rate and totalized flow. Meter(s) shall be calibrated by the supplier prior to shipment.

Hazardous Nonwastewater Treatment and Disposal

Dispose of hazardous wastes, including environmental media or debris that exhibit a hazardous characteristic, at an off-site facility in compliance with applicable requirements in Title 40 CFR Parts 264 or 265 and Title 22 CCR Chapters 14 and 15. Treat hazardous wastes off-site, if necessary, in strict accordance with applicable requirement in Title 40 CFR Part 268 and Title 22 CCR Chapters 18. Nonhazardous petroleum contaminated soils may be disposed in accordance with Title 14 CCR Chapter 13, Article 5.6.

Hazardous debris may be decontaminated by an extraction or destruction technology in accordance with Title 40 CFR Part 268.45 in lieu of disposal as a hazardous waste. Permit the Engineer to inspect all decontaminated surfaces to verify compliance with decontamination criteria, and remedy any deficiencies identified by the Engineer.

Dispose of wastes at the lowest cost, permissible, waste classification for the material to be disposed. If a disposal facility ceases to accept a waste, identify an alternate facility that complies with requirements in this section.

If notification of receipt of any waste shipment has not been received by the Contractor within three days after departure from the site, the Contractor shall immediately notify the Engineer and contact the facility to determine the status of the waste shipment and resolve the discrepancy.

4. Permits, Licenses and Notifications

Description

Requirement for working contaminated areas.

Submittals

Contractor shall submit copies of permits, licenses and notifications required for project work in the contaminated areas prior to commencing work.

Construction

The Contractor is required to obtain all permits, make notifications, and possess all licenses required for excavating, handling, monitoring, and transporting hazardous materials. Contractor may need to hire subcontracted support to fulfill requirements. The following is a partial list of potential issues related to this section. Contractor is responsible for fulfilling all permit requirements whether or not it is listed below.

- a. Orange County Sanitation District – requirements for disposal of water into the sanitary sewer
- b. Regional Water Quality Control Board – requirements for disposal of water into the storm drain (NPDES permit).
- c. Irvine Ranch Water District (IRWD) – requirements for disposal of water into the sanitary sewer.

5. Backfill for Utilities in Contaminated Areas

Description

This work shall be performed as shown on the plans or as specified herein, and as directed by the Engineer should such additional work be deemed necessary. This work shall consist of furnishing, placing, and compacting impervious backfill material in pipe trenches including all incidentals necessary to complete the work as specified.

Submittals

Submit the following:

Cement Stabilized Sand or Slurry: Submit proposed target cement content and production data for sand-cement mixture in accordance with the following requirements:

- a. Obtain samples of sand-cement mixtures at the production facility representing a range of cement content consisting of at least three points.
- b. Complete the molding of samples within four hours after the addition of water.
- c. Perform strength tests (average of two specimens) at 48 hours and 7 days.
- d. Perform cement content tests on each sample.
- e. Perform moisture content tests on each sample.
- f. Plot average 48-hour strength vs. cement content
- g. Record scale calibration date, sample date, sample time, molding time, cement feed dial settings, and silo pressure (if applicable).
- h. Test the raw sand for the following properties at the point of entry into the pug-mill:
 - 1. Gradation
 - 2. Plasticity index
 - 3. Organic impurities
 - 4. Clay lumps and friable particles
 - 5. Lightweight pieces
 - 6. Moisture content
 - 7. Classification
- i. Certified copies of soil material geotechnical results for Record purposes
- j. Delivery tickets for soil material for Record purposes, on a regular basis as material is delivered to the site
- k. Quality control data as specified in this Section for Record purposes, on a regular basis

The Contractor shall allow a minimum of 20 working days for submittal review. The submittal shall be accompanied by a letter of transmittal describing exactly what is transmitted.

Materials

Cement Stabilized Sand or Slurry: Mix materials shall meet the following requirements:

- a. Cement: Type I Portland cement conforming to ASTM C 150
- b. Sand: Clean, durable sand meeting grading requirements for fine aggregates of ASTM C 33 and the following requirements:
 - 1. Classified as SW, SP, SW-SM, SP-SM, or SM by the United Soil Classification System of ASTM D 2487.
 - 2. Deleterious materials:
 - i. Clay lumps, ASTM C 142; less than 0.5 percent
 - ii. Lightweight pieces, ASTM C 123; less than 5.0 percent

- iii. Organic impurities, ASTM C 40, color no darker than the standard color
- 3. Plasticity index of 4 or less when tested in accordance with ASTM D 4318.
- c. Water: Potable water, free of oils, acids, alkalies, organic matter, or other deleterious substances, meeting requirements of ASTM C 94.

Cement Stabilized Sand shall be mixed in a pugmill-type mixer. Stamp batch ticket at plant with time of loading. Material not placed and compacted within four hours after mixing shall be rejected.

Design Requirements for Cement Stabilized Sand

Sand-cement mixture shall produce a minimum unconfined compressive strength of 220 pounds per square inch in 48 hours for two-sack mix, or 80 pounds per square inch in 48 hours for an one-sack mix.

Design will be based on strength specimens molded in accordance with ASTM D 558 at moisture content within three percent of optimum and within four hours of batching.

Determine minimum cement content from production data and statistical history. Mix shall contain not less than two sacks of cement per cubic yard of dry sand for sanitary sewers and storm drains proposed at an elevation where any portion of the pipe is to be constructed below the high groundwater elevation as shown on the Drawings. Mix shall not contain less than one sack of cement per cubic yard of dry sand for domestic and reclaimed waterlines proposed at an elevation where any portion of the pipe is to be constructed below the high groundwater elevation as shown on the Drawings.

Construction

The sanitary sewer, storm drains, and waterlines that are proposed to be installed within the horizontal limits of the 1,2,3-TCP plume, below the high groundwater elevation (as shown on the Drawings), and as defined Section 1 "General" in the Special Provisions shall be backfilled with the impervious materials specified in this Section. Placement of Impervious Backfill shall be considered incidental unless otherwise noted.

Placement of additional Impervious Backfill may be directed by the Engineer if 1,2,3-TCP, and/or TCE is encountered during construction of other utilities.

Pipe Zone Embedment

Cement Stabilized Sand or Slurry: Cement Stabilized Sand or Slurry shall be used as pipe embedment material. Immediately prior to placement of embedment material, the bottoms and sidewalls of trenches shall be free of loose, sloughing, caving, or otherwise unsuitable soil.

For pipe installation, place embedment material around the pipe to provide uniform bearing and side support when compacted. Do not allow materials to free-fall from heights greater than 24 inches above top of pipe. Perform placement and compaction directly against the undisturbed soils in the trench sidewalls.

Place Cement Stabilized Sand embedment material in haunch areas manually, and compact it to provide uniform bearing and side support.

Shovel in-place and compact Cement Stabilized Sand embedment material using pneumatic tampers in restricted areas, and vibratory-plate compactors or engine-powered jumping jacks in unrestricted areas. Compact each lift before proceeding with placement of next lift. Water tamping is not allowed.

For Cement Stabilized Sand use maximum six inches compacted thickness. Compact to achieve a minimum of 95 percent of maximum dry density as determined according to ASTM D 558.

Moisture content of Cement Stabilized Sand shall be on dry side of optimum as determined according to ASTM D 558 but sufficient for cement hydration.

Perform and complete compaction of sand-cement mixture within four hours after addition of water to mix at the plant. Do not place or compact sand-cement mixture in standing or free water.

Trench Zone Backfill

Trench zone backfill shall be Cement Stabilized Sand or Slurry up to the high groundwater elevation as shown on the Drawings. For Cement Stabilized Sand, follow compaction requirements as listed in "Pipe Zone Embedment" requirements.

Trench zone backfill above the high groundwater elevation shall be per the Standard Specifications.

Compact material to a minimum of 95 percent of the maximum dry density determined according to ASTM D 698.

Moisture content shall be within three percent of optimum determined according to ASTM D 698.

EXHIBIT D

APPROVED PROJECTS, DESCRIPTIONS/PROCEDURES Dated 3 September 2004



DEPARTMENT OF THE NAVY
SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132-5100

11011
Ser 06CH.CH/0918
September 3, 2004

Lennar Communities
ATTN: Marsha Santry
15685 Lansdown Road
Tustin, CA 92780

Dear Ms. Santry:

We have completed our review of your request dated April 6, 2004, for approval to perform grading operations, install underground utilities and build residential units on Parcel 24 at MCAS Tustin, within the footprint of IRP-16. We have also completed our review of your request dated April 14, 2004 for approval to perform surface grading activities within the footprint of UST-268, IRP Site 13W, and IRP Site 13S. Enclosures 1, 2 and 3 (with attachments) are provided for your information.

Based on the information provided, both requests are approved, subject to the following conditions:

- A portion of IRP-13S is fenced to ensure the area is not disturbed until soil removal activities are completed and BCT approval is obtained. Upon the Navy's completion of soil removal activities, your grading activities must be limited to a depth of no more than five feet without prior written Government approval, in accordance with paragraph 8 of your lease.
- No grading, construction, or other activities may proceed within the fenced portion of IRP-13S until the Navy completes the soil hot spot removal action and the BCT approves the soil removal portion of the OU-1A remedial action. See the attached figure in the Project Environmental Review Form.
- Activities within the footprint of the unfenced portion of IRP-13S, IRP-13W, and UST-268 must be limited to subsurface grading to a depth of no more than five feet. Grading activities include disposal and removal of pavements and roadways within the project area. A grading plan must be submitted prior to commencement of work to verify that the grading activities are consistent with these conditions.
- Any remediation system equipment, piping and groundwater monitoring and extraction wells associated with IRP-13S, IRP-13W, and UST-268 must be protected from damage or disturbance during grading work. Lennar shall ensure that these sites are flagged or marked to ensure that they can be identified.


11011
Ser 06CH.CH/0918
September 3, 2004

- All groundwater monitoring wells associated with IRP-16 shall be closed in accordance with state and local requirements. Copies of the well destruction permit shall be provided to the Navy upon completion.
- Prior to any ground disturbing activity, the City of Tustin Caretaker Site Office must be contacted to identify and locate installation utility lines.
- Further Navy review and approval (which may include revision of certain lease restrictions) will be required prior to use or occupancy of any facilities constructed within the footprint of IRP-16.

Since both of your requests are pursuant to residential construction, you must also conduct post-demolition soil sampling and any necessary abatement of lead hazards in soil, as indicated in paragraph 13.20 of your lease.

We look forward to working with you in future as you develop the property. If you have any questions or concerns about this matter, you may contact Mary Jane Beck at (619) 532-0766 or Randy Kiefer at (619) 532-0785.

Sincerely,


CHRISTOPHER E. HASKETT
Real Estate Contracting Officer
Base Realignment and Closure Office

Enclosures: 1. Project Environmental Review Form (IRP-16)
2. Project Environmental Review Form (IRP-13S, IRP-13W)
3. Project Environmental Review Form (UST-16, UST-268)

**PROJECT ENVIRONMENTAL EVALUATION FOR CONSTRUCTION OF THE
TUSTIN VILLAS PROJECT at FORMER MARINE CORPS AIR STATION
(MCAS) TUSTIN, CALIFORNIA**

AFFECTED AREAS/PARCELS: Carve-Out Area 5 (CO 5), Parcel 24, Site IRP-16

1. Purpose:

This evaluation provides the basis for approval of activities requested by Lennar Communities on April 6, 2004 in conjunction with the Tustin Villas Project.

This evaluation is required by the 11 March 2003 Lease in Furtherance of Conveyance (LIFOC) between the United States of America and Marble Mountain Partners, LLC. Paragraph 8.1 of the LIFOC specifically prohibits any construction, demolition, alteration, additions excavations, or improvements to the premises without the prior written consent of the Government.

In addition, the 26 April 2002 Finding of Suitability to Lease (FOSL 3) requires BCT review and approval in the event that a project involves activities that are restricted due to environmental concerns. The environmental concerns for the property are identified in Finding of Suitability to Lease (FOSL 3). This evaluation documents the approval of this project based on the finding that since FOSL 3 was completed, IRP-16 has received a preliminary No Further Action (NFA) determination, as summarized in the OU-4 Technical Memorandum.

2. Use Restrictions:

The FOSL, Sections 4.1, 4.2, 4.5, 4.8, and 4.12, and 4.16 address the specific environmental conditions that are relevant to this project. Although each section of the FOSL addresses a different environmental issue, Sections 4.1, 4.2, 4.5 and 4.12 require the same use restriction, which is that the lessee shall not conduct any subsurface excavation, digging, drilling or other disturbance of the surface within the entire CO area without the prior approval of the Navy and the BCT. Section 4.8 prohibits access or occupancy of existing buildings or newly constructed buildings, and 4.16 requires that monitoring wells, surface water gauging locations and their associated equipment shall not be altered, disturbed or removed without the prior review and approval of the DON and BCT.

3. Proposed Project:

IRP-16

In preparation for construction of the Tustin Villas Project, Lennar Communities is proposing to perform grading activities, install underground utilities, and build residential units, including a village green and model homes. Grading activities are scheduled to start in 2004. All groundwater monitoring wells at IRP-16 shall be abandoned in accordance with State of California, California Water Well Standards, and County of Orange requirements. Copies of the well destruction permit shall be provided to the Navy prior to closure of the wells, and copies of the well abandonment report shall be provided to the Navy and the Orange County Health Care Agency upon completion.

4. Current Environmental Clean Up Program:

IRP-16 comprises approximately two acres in the center of Parcel 24. The IRP site originally consisted of three subareas (IRP-16A, B, C). As petroleum sites, IRP-16A and IRP-16C were addressed and closed under the Petroleum Corrective Action Program of the Regional Water Quality Control Board Santa Ana Region.

A portion of IRP-16B was transferred and closed under the Petroleum Corrective Action Program. This site was formerly comprised of UST Sites 22A through 22M, collectively known as UST Area 22. See Attachment 1 for the RWQCB closure letter.

The remaining portion of IRP-16B (referred to simply as IRP-16) was evaluated as part of the OU-4 Technical Memorandum in 2003. The Navy evaluated potential human health risks at IRP-16 due to exceedances of the Maximum Contaminant Levels (MCLs) of select volatile organic compounds (VOCs), including benzene, tetrachloroethene, and 1,1-dichloroethane, in groundwater.

Results of groundwater samples collected from multiple rounds of groundwater monitoring as recently as 2003 indicated no VOCs were detected above their respective MCLs. The Navy recommended No Further Action (NFA) at IRP-16 based on the human-health risk assessment prepared for the OU-4 Technical Memorandum. The Base Realignment and Closure Cleanup Team (BCT) has concurred with the Navy's NFA recommendation for IRP-16. A Record of Decision (ROD) is currently under development, and the Navy has scheduled the ROD to be signed in October 2004. See Attachment 2 for excerpts from the OU-4 Technical Memorandum addressing IRP-16.

5. Potential Project Impacts on Environmental Clean up Program

The Navy has recommended NFA for IRP-16 based on the absence of any unacceptable risks to human health and the environment. Therefore, the project will have no impact on the environmental clean up program.

6. Conclusions and Recommendations

The project may be approved provided that the following conditions are met:

- 1) All groundwater monitoring wells at IRP-16 shall be abandoned in accordance with State of California requirements, California Water Well Standards and County of Orange requirements.
- 2) Copies of the well destruction permit shall be provided to the Navy prior to closure of the wells, and copies of the well abandonment report shall be provided to the Navy and the Orange County Health Care Agency upon completion.

In addition, DTSC has provided a Cautionary Note concerning their suggested use of vapor barriers at this site. See Attachment 3.

7. Attachments:

- 1) RWQCB letter of March 3, 1997

- 2) **Excerpt, Final Technical Memorandum, Shallow Groundwater Investigation for Operable Unit 4, Former Marine Corps Air Station Tustin, Tustin, California, June 2004**
- 3) **DTSC Cautionary Note**

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SANTA ANA REGION

1537 MAIN STREET, SUITE 500

OVERSIDE, CA 92501-3339

PHONE: (909) 782-4130

FAX: (909) 781-6288



March 3, 1997

Mr. Wayne D. Lee
Headquarters
Marine Corps Air Station El Toro
Environmental and Safety
P.O. Box 95001
Santa Ana, CA 92709-5001

SUBJECT: CASE CLOSURE, FORMER UNDERGROUND STORAGE TANK AREA 22,
MARINE CORPS AIR STATION TUSTIN

Dear Mr. Lee,

This letter confirms the completion of site investigations and remedial actions for the subject underground storage tank site. Based on the information provided in the Underground Storage Tank Area 22 Closure Report dated 1/17/97, and with the provision that the information provided to this agency was accurate and representative of site conditions, no further action related to the underground storage tank releases is required.

This notice is issued pursuant to a regulation contained in Title 23, Division 3, Chapter 16, Section 2721(e) of the California Code of Regulations.

If you have any questions regarding this matter, please contact Lawrence Vitale at (909) 782-4998.

Sincerely,

Gerard J. Thibeault
Executive Officer

cc: LT Hope Katcharian, Marine Corps Air Station El Toro
Mr. Bill Diekman, Orange County Health Care Agency
Mr. John Adams Jr., State Water Resources Control Board, Division of Clean
Water Programs

Section 1 Introduction and Previous Investigations

1.7.8 IRP-16 – VOC Solvent Contamination Area

IRP-16, the VOC Solvent Contamination Area, is located in the northwest portion of Former MCAS Tustin on the eastern boundary of the Berry Road loop (Figure 1-2). The site is an open field east of the former Fuel Farm. IRP-16 is in an area designated for medium density residential use (City of Tustin 1998).

1.7.8.1 SITE HISTORY

IRP-16 was historically designated the "Fuel Farm Area." The site comprised three subareas: 16A, 16B, and 16C. IRP-16A contained 39 former USTs and was identified as the "Fuel Farm Proper." IRP-16B consisted of a railroad track (AOC AMRRT-1) used for product loading and unloading, and was located adjacent to and east of IRP-16A. IRP-16C was located south of IRP-16A and -16B and contained two ASTs and a 4-inch-diameter underground fuel line for JP-5.

The Navy reviewed the information available for all three subareas and determined that it was appropriate to remove IRP-16A and IRP-16C from the IRP under the CERCLA petroleum exclusion clause and address them as a fuel remediation project under the Petroleum Corrective Action Program (PCAP) of the Regional Water Quality Control Board (RWQCB) Santa Ana Region (BNI 1997b, OHM 1997). Because of the resulting transfer of IRP-16A and IRP-16C to the Santa Ana RWQCB PCAP, IRP-16B was renamed IRP-16, the VOC Solvent Contamination Area.

A former rail line is reported to have run through IRP-16, just east of and parallel to the perimeter road for the UST Fuel Farm (Brown and Caldwell 1985). A drainage ditch was located between the rail line and the road and is still visible (Figure 1-10). No other station activity has been reported at IRP-16.

1.7.8.2 NATURE AND EXTENT OF CONTAMINATION

The nature and extent of contamination interpreted from previous investigations at IRP-16 are summarized in this subsection; a more detailed description is provided in the RI Report (BNI 1997b). Soil and groundwater samples were collected during the RI in 1996 and 1997. Figure 1-10 depicts previous soil and groundwater sampling locations and shows concentrations of 1,1-DCA and PCE reported during previous investigations. The areal extent of total VOCs in groundwater at concentrations exceeding 5 µg/L was estimated on the basis of data obtained during the RI to be approximately 200 feet in a north-south direction and 80 feet in an east-west direction (Figure 1-10).

Table 1-13 presents the frequency of reporting and the range of concentrations of the COPCs identified in soil at IRP-16 during the RI (BNI 1997b). Soil samples were analyzed for VOCs, TRPH, PAHs, SVOCs, PCBs, and metals. Two areas of contaminated soil were identified during the RI (Figure 1-10). Soil in one area located along the road that separates IRP-16 from the Fuel Farm Area (area of groundwater contamination) was contaminated with fuel hydrocarbons and chlorinated hydrocarbons. Soil in a second area (the excavation area) located in the northeast corner of IRP-16 had VOC and TRPH contamination (Figure 1-10). A geophysical anomaly noted in this

Section 1 Introduction and Previous Investigations

second area during subsurface clearance activities was suspected of being a dry well used for disposal of liquid wastes.

In 1996, soil in the northeast portion of IRP-16 was transferred from the IR program under CERCLA to the PCAP to expedite remedial action at the site; concurrence was received from DISC, U.S. EPA, and RWQCB (DON 1996). Also in 1996, approximately 6,210 tons of soil was excavated from the northeast portion of IRP-16 under the PCAP (OHM 1997). The extent of the excavation was approximately 160 feet by 140 feet by 25 feet deep. Confirmation soil sampling indicated that TPH as gasoline and benzene, toluene, ethylbenzene, and xylenes were present at concentrations exceeding the target remediation levels (1,000 mg/kg for TPH and respective PRGs for VOCs) in the northwest portion of the excavation. It was estimated that approximately 3,170 tons of contaminated soil was left in place at IRP-16. Based on the remaining limited extent of contaminated soil left in place following the removal action, and in consultation with the RWQCB, NFA was recommended for this site (BNI 1997b). The RWQCB issued a closure letter for the removal action indicating that NFA for soil was needed (RWQCB 1997).

Table 1-13 presents the frequency of reporting and the range of concentrations of the COPCs identified in groundwater at IRP-16 during the RI (BNI 1997b). Groundwater samples were analyzed for VOCs, TRPH, SVOCs, and metals. The MCLs for benzene (1 µg/L), PCE (5 µg/L), 1,1-DCA (5 µg/L) were exceeded in groundwater samples. VOCs were reported in groundwater in the same areas where contaminated soil was found (adjacent to the fuel farm and northwest portion of IRP-16). During the RI, total VOCs were reported in groundwater at concentrations exceeding 5 µg/L and extending approximately 200 feet in a north-south direction and approximately 80 feet in a west-east direction (Figure 1-10).

Groundwater samples were collected from three monitoring wells at the site during three monitoring rounds in 1996 and one confirmation groundwater monitoring round in October 2001. VOCs were not reported in groundwater samples collected during the three rounds conducted in 1996. During the 2001 confirmation round, PCE and TCE were reported at concentrations of 0.29 and 0.16 µg/L, respectively, in one groundwater sample from monitoring well I016MW02S, and toluene was reported at a concentration of 0.35 µg/L in one sample from I016MW03S (Figure 1-10). Based on these results, NFA was recommended for IRP-16.

1.7.8.3 CONTAMINANT FATE AND TRANSPORT

Contaminant transport within the saturated zone at IRP-16 was addressed by the stationwide groundwater transport modeling conducted as part of the RI (BNI 1997b). Stationwide numerical models were developed to assist the fate and transport analysis of VOCs at IRP-16, which indicated that concentrations of VOCs would be reduced to less than 5 µg/L within the next 10 years as a result of hydrodynamic dispersion in the aqueous phase and adsorption by the soil matrix.

Because a previous soil removal action was conducted, no vadose zone leaching analysis was performed for IRP-16 (BNI 1997b).

Section 1 Introduction and Previous Investigations

Table 1-13
Frequency of Reporting and Range of Concentrations of COPCs in Soil
and Groundwater at IRP-16

Analyte	Frequency of Reporting	Detection Limit	Range of Concentrations	Unit	Background Level ^a
SOIL					
Volatile Organic Compounds					
acetone	8/65	11-1,500	13-200	µg/kg	— ^b
benzene	2/65	11-1,500	7-19	µg/kg	—
carbon disulfide	2/65	11-56	4-5	µg/kg	—
chlorobenzene	1/65	11-56	31	µg/kg	—
ethylbenzene	3/65	11-56	10-500	µg/kg	—
methylene chloride	4/65	11-13	4-64	µg/kg	—
methyl ethyl ketone	3/65	11-56	7-16	µg/kg	—
tetrachloroethene	6/65	11-56	4-220	µg/kg	—
toluene	2/65	11-56	59-2,400	µg/kg	—
trichloroethene	5/65	11-56	5-13	µg/kg	—
xylene, total	4/65	11-56	5-5,700	µg/kg	—
Semivolatile Organic Compounds					
bis(2-ethylhexyl)phthalate	¼	210	23-46	µg/kg	—
di-n-butylphthalate	¼	190-210	45	µg/kg	—
palmitic acid	2/2	—	90-112	µg/kg	—
Polynuclear Aromatic Hydrocarbons					
acenaphthene	1/59	2.4-300	4	µg/kg	—
anthracene	4/59	2.4-300	4.6-280	µg/kg	—
benz(a)anthracene	3/59	2.4-300	9.9-240	µg/kg	—
benzo(a)pyrene	2/59	2.4-300	2.9-68	µg/kg	—
benzo(b)fluoranthene	19/59	2.4-300	2.7-370	µg/kg	—
benzo(g,h,i)perylene	3/59	2.4-300	4.6-5.5	µg/kg	—
benzo(k)fluoranthene	2/59	2.4-300	35-270	µg/kg	—
chrysene	2/59	2.4-300	4.6-180	µg/kg	—
dibenz(a,h)anthracene	2/59	2.4-300	3.1-8.2	µg/kg	—
fluoranthene	3/59	2.4-300	3.1-90	µg/kg	—
fluorene	4/59	2.4-300	5.5-490	µg/kg	—
indeno(1,2,3-cd)pyrene	1/59	2.4-300	12	µg/kg	—
naphthalene	8/59	2.4-300	6-7,400	µg/kg	—
phenanthrene	8/59	2.4-300	3.4-430	µg/kg	—
pyrene	3/59	2.4-300	13-790	µg/kg	—
Metal					
arsenic	5/61	3	3-36.1	mg/kg	17.5

(table continues)

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Table 1-13 (continued)

Analyte	Frequency of Reporting	Detection Limit	Range of Concentrations	Unit	Background Level ^a
GROUNDWATER					
Volatile Organic Compounds					
acetone	7/20	10	350-1,900	µg/L	—
benzene	2/25	10-50	12-310 ^c	µg/L	—
dibromochloromethane	1/20	10-50	9	µg/L	—
1,1-dichloroethane	2/25	10-50	5-11	µg/L	—
ethylbenzene	2/20	10-20	130-150	µg/L	—
2-hexanone	1/20	10-500	14	µg/L	—
methyl ethyl ketone	2/20	10-500	22-76	µg/L	—
4-methyl-2-pentanone	1/20	10-100	51	µg/L	—
tetrachloroethene	2/25	10-50	16-34	µg/L	—
toluene	2/20	10-50	13-510	µg/L	—
trichloroethene	2/20	10-50	3-4	µg/L	—
xylenes (total)	3/20	10-20	13-810	µg/L	—
Semivolatile Organic Compounds					
benzoic acid	1/5	50	6.3	µg/L	—
bis(2-chloroethoxy)methane	1/5	10	3.6	µg/L	—
bis(2-ethylhexyl)phthalate	1/5	10	14	µg/L	—
di-n-butyl phthalate	2/5	10	8.4-11	µg/L	—
Naphthalene	1/5	10	3.2	µg/L	—
Phenol	1/5	10	7.6	µg/L	—
Metal					
Selenium	4/5	3-4	308-456	µg/L	326

Notes:

- ^a background levels for metals were calculated at the 99th percentile concentration; background was not calculated for organic compounds
- ^b dash indicates not applicable
- ^c the maximum reported concentration of benzene (310 µg/L) was in a groundwater sample collected from a temporary wellpoint from a location that was later excavated; benzene was not reported in any groundwater samples collected from three monitoring wells during three rounds of groundwater monitoring conducted in 1996 nor during confirmation sampling conducted during 2001

Acronyms/Abbreviations:

COPC – chemical of potential concern
IRP – Installation Restoration Program
µg/kg – micrograms per kilogram
µg/L – micrograms per liter
mg/kg – milligrams per kilogram

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1.7.8.4 RISK ASSESSMENT

A baseline HHRA was performed for IRP-16 during the RI (BNI 1997b) (Table 1-4). Risks from exposure to soils were estimated under four future land-use scenarios: residential, industrial (office worker), construction worker, and recreational (park user). Risks from exposure to groundwater were evaluated under residential and construction worker scenarios. It should be noted that the HHRA did not exclude data from soil excavated during the soil removal action conducted in 1996.

Exposure to COPCs in soil resulted in estimated cancer risks for residents (6.4×10^{-5}), office workers (3.8×10^{-5}), construction workers (2.6×10^{-6}), and park users (9.8×10^{-6}) that were within NCP's generally acceptable range (10^{-6} to 10^{-4}). The noncancer HIs for the office worker (0.23), construction worker (0.4), and park user (0.30) did not exceed the threshold value of 1. The noncancer HI estimated for residents (1.1) exceeded the threshold value of 1, primarily due to arsenic. The NFA recommendation for soil was based on these risk estimate results and on the soil removal action conducted at IRP-16B (BNI 1997b).

Exposure to COPCs in groundwater resulted in estimated cancer risks for residents (9.1×10^{-4}) that exceeded NCP's generally acceptable range and cancer risks for construction workers (1.6×10^{-6}) that were within the acceptable range. Noncancer HIs estimated for residents (89) and construction workers (1.7) exceeded the threshold value of 1. In general, risk drivers at IRP-16 were identified as benzene and PCE in groundwater.

- Human-health risks were also evaluated without petroleum-related constituents. As defined by the California State Water Resources Control Board, benzene is considered a petroleum-related constituent under the CERCLA petroleum exclusion clause and is therefore addressed under the PCAP administered by the RWQCB (1995). Cancer and noncancer risks for residents were estimated at 1.3×10^{-4} and 10, respectively, after petroleum-related constituents in groundwater were excluded from the data sets (Table 1-4). PCE was identified as the primary risk driver in groundwater.

Cancer and noncancer risks were also estimated using the 30-year average VOC concentrations obtained from groundwater modeling performed during the RI (BNI 1997b). Using the 30-year average concentrations of VOCs, the estimated cancer risk (8.8×10^{-7}) and noncancer HI (0.04) were considered acceptable (Table 1-4). NFA was recommended for groundwater based on these results (BNI 1997b).

1.7.8.5 SUMMARY

NFA was recommended for soil and groundwater at IRP-16 during the RI (BNI 1997b). The NFA recommendation for soil was based on risk assessment results and the PCAP soil removal action. The NFA recommendation for groundwater was based on risk assessment results using 30-year average VOC concentrations obtained from stationwide groundwater modeling. PCE, the primary driver for both the cancer risk (8.8×10^{-7}) and

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the HI (0.04) in groundwater, was reported at a maximum concentration of 34 µg/L. Stationwide groundwater modeling indicated that concentrations of PCE would be reduced to less than 5 µg/L within 10 years.

NFA was again recommended for IRP-16 based on results of groundwater sampling conducted in fall 2001. During this sampling round, PCE was reported at a maximum concentration of 0.29 µg/L. This lower PCE concentration supports the results of groundwater modeling. TCE and toluene were reported at concentrations of 0.16 and 0.35 µg/L, respectively. No other VOCs were reported in groundwater samples during this sampling round.

Although NFA was recommended for groundwater, the Navy decided to evaluate potential remedial alternatives for IRP-16 in the draft FFS due to the MCL exceedances. The baseline HHRA has been updated for soil and groundwater at IRP-16 and is included in Section 5 of this Technical Memorandum. No additional groundwater samples were collected at IRP-16 as part of this shallow groundwater investigation.

1.7.9 MMS-04 – Auto Hobby Shop

MMS-04, the Auto Hobby Shop, is located in the northwestern portion of Former MCAS Tustin (Figure 1-2). MMS-04 consists of three distinct subareas of potential concern, Areas A through C. These three subareas are located south of Perry Road and northwest, north, and northeast of Building 185, respectively (Figure 1-11). Recommendations for NFA or for further action will be provided separately for Areas A, B, and C. MMS-04 is in an area designated for reuse as a sheriff's department and law enforcement training facility (City of Tustin 1998).

1.7.9.1 SITE HISTORY

MMS-04 was used by station personnel for vehicle maintenance. Area A was described in the IAS Report as a 4-foot-square area of stained soil located outside the northwestern corner of the fence that surrounds the site. Area B was described as the area within the fence line of the shop that contained a waste oil UST (UST 185) that periodically overflowed. Area C was described as a small drainage ditch located outside the fence line of the shop, which reportedly received waste oil runoff from Area B (Brown and Caldwell 1985).

Area B included a concrete UST that reportedly overflowed periodically to bare ground during rainstorms from 1969 (when MMS-04 was constructed) to 1983 (when the site was paved). Station personnel stated that the UST was removed in September 1993 and that Orange County regulatory officials were present during its removal. The UST was reportedly still "dirty" when it was closed. The UST had received waste solvents, crankcase oils, and transmission and brake fluids from the shop through floor drains. Based on an estimate that 10 gallons of these substances was released every 3 years, a total of approximately 50 gallons of waste oil had been released. Contaminated soil surrounding the UST may have been excavated when the site was paved in 1983 as

Section 6

CONCLUSIONS AND RECOMMENDATIONS

This section presents conclusions and recommendations for NFA or further action at each of the sites within OU-4. It is anticipated that sites recommended for NFA (OU-4A) are eligible for site closure by means of an NFA PP/ROD. Sites recommended for further action (OU-4B) will proceed through the FS process. Recommendations for NFA were previously made for IRP-11 (Areas A and B) and MMS-04 (Areas A, B, and C) as single areas. However, based on current investigation (including risk assessment) results, IRP-11 (Area B) and MMS-04 (Area B) are recommended for further action, and are included under OU-4B. IRP-11 (Area A) and MMS-04 (Areas A and C) are recommended for NFA and are included under OU-4A.

6.1 SITES RECOMMENDED FOR NFA (OU-4A)

NFA is recommended for IRP-5N, IRP-5S(b), IRP-8, IRP-11 (Area A), IRP-16, and MMS-04 (Areas A and C) based on current and previous investigation results as summarized below. NFA was previously recommended for each of these sites. (See Section 1 for details.)

6.1.1 IRP-5N

The NFA recommendation for soil and groundwater at IRP-5N is supported by the current risk assessment results for residential exposure to COPCs in soil and groundwater (combined). Human-health risk results were estimated to be 3.2×10^{-7} (using U.S. EPA criteria), which does not exceed the NCP point of departure for acceptable risks (10^{-6}). The noncancer HI was estimated to be 0.094, which is below the HI threshold value of 1.

6.1.2 IRP-5S(b)

The NFA recommendation for soil and groundwater at IRP-5S(b) is supported by the current risk assessment results for residential exposure to COPCs in soil and groundwater (combined). Human-health risk results were estimated to be 6.1×10^{-7} (using Cal/EPA criteria), which does not exceed the NCP point of departure for acceptable risks (10^{-6}). The noncancer HI was estimated to be 0.094, which is below the HI threshold value of 1.

6.1.3 IRP-8

The NFA recommendation for soil and groundwater at IRP-8 is supported by results of this shallow groundwater investigation. During this investigation, 1,2-DCP was reported in groundwater at concentrations up to 3.4 µg/L, whereas the maximum previously reported concentration was 8.0 µg/L. The current results support previous groundwater modeling, indicating that concentrations of 1,2-DCP in groundwater would decrease to less than 5 µg/L within 10 years. Previous risk assessment results indicate that cancer risks to residents from exposure to groundwater with COPCs (at predicted concentrations) were estimated to be 2.5×10^{-6} , which is within the NCP generally acceptable risk range of 10^{-6} to 10^{-4} . The noncancer HI was estimated to be 0.14, which is below the HI threshold value of 1.

6.1.4 IRP-11 (Area A)

The NFA recommendation for soil and groundwater is supported by results from soil sampling within Area A and groundwater sampling from a nearby monitoring well. No TRPH or VOCs were reported in two soil samples collected from Area A. No VOCs were reported in a groundwater sample collected from a downgradient (south) monitoring well during the ESI.

6.1.5 IRP-16

The NFA recommendation for soil and groundwater is supported by recent groundwater monitoring and current risk assessment results for residential exposure to COPCs in soil and groundwater (combined). Trace concentrations of PCE reported during recent (fall 2001) groundwater monitoring support previous groundwater modeling, indicating concentrations of PCE in groundwater would decrease to less than 5 µg/L within 10 years.

Total and incremental human-health risks from residential exposure to soil and groundwater were estimated, using U.S. EPA slope factors, to be 6.5×10^{-5} and 4.3×10^{-5} , respectively. The total noncancer HI at IRP-16 was estimated to be 9.3, with 90 percent of this value attributable to concentrations of selenium and manganese in groundwater. Both of these metals are naturally occurring in groundwater at Former MCAS Tustin (BNI 1997b), and only selenium was identified in the RI Report at concentrations that were slightly above background. It should also be noted that there is no historic evidence of on-site disposal involving these metals, and concentrations in soil were reported to be below background thresholds in the RI Report. As such, the noncancer risk contribution from selenium and manganese in groundwater is likely from naturally occurring concentrations at IRP-16.

6.1.6 MMS-04 (Areas A and C)

The NFA recommendation for soil and groundwater is supported by previous risk assessment results. Human-health risks from exposure to soil under a residential scenario were estimated to be 4.7×10^{-8} for Area A and 9.4×10^{-7} for Area C, which do not exceed the NCP point of departure for acceptable risks (10^{-6}). The noncancer HIs were estimated to be 0.008 for Area A and 0.04 for Area C, which do not exceed the HI threshold value of 1. No COPCs were identified in groundwater samples from Area C or in groundwater samples collected downgradient from Area A.



Terry Tamminen
Agency Secretary
Cal/EPA



Department of Toxic Substances Control

5796 Corporate Avenue
Cypress, California 90630



Arnold Schwarzenegger
Governor

CAUTIONARY NOTE

IRP-16: The Navy estimates that approximately 3,170 tons of contaminated soil was left in place in the northwest portion of IRP-16. Benzene, toluene, ethylbenzene, and xylene (BTEX) were detected in soil at 20 feet bgs at concentrations up to 6,800 $\mu\text{g}/\text{kg}$ (benzene), 610 $\mu\text{g}/\text{kg}$ (ethylbenzene), 310 $\mu\text{g}/\text{kg}$ (toluene), and 2,100 $\mu\text{g}/\text{kg}$ (total xylenes). DTSC recommends that any excavation or grading in this area be accompanied by monitoring for these mono-aromatic volatile chemicals. Due to the volatile nature of BTEX, its presence in shallow soils, and the shallow depth of groundwater at IRP-16, DTSC sees a potential for intrusion of vapors into the indoor air of any structure erected at the site; in-home vapor barriers might be called for. Moffett Field, a former Navy and NASA facility in Mountain View, California, had similar contamination in shallow soils and groundwater. USEPA and developers found that installation of sub-slab vapor extraction systems were required for some of the homes and other buildings constructed at this property.

Vapors Barriers: When volatile chemicals are present in shallow soil and groundwater, intrusion of vapors into structures can be ameliorated by installation of passive sub-slab vapor extraction systems. A passive sub-slab vapor extraction system can be installed inexpensively, if done during initial construction. Such systems have been used extensively to protect residents in areas of the country where radon intrusion into homes poses a significant health threat. Vapor barriers are required in California for construction in the immediate vicinity of closed landfills, which often produce many gases.

**PROJECT ENVIRONMENTAL EVALUATION FOR SITE GRADING FOR THE
TUSTIN VILLAS PROJECT at FORMER MARINE CORPS AIR STATION
(MCAS) TUSTIN, CALIFORNIA**

AFFECTED AREAS/PARCELS: Carve-Out Area 5 (CO 5), Parcel 24, Sites IRP-13S and IRP-13W

1. Purpose:

This evaluation provides the basis for approval of activities requested by Lennar Communities on April 14, 2004 in conjunction with the Tustin Villas Project.

This evaluation is required by the 11 March 2003 Lease in Furtherance of Conveyance (LIFOC) between the United States of America and Marble Mountain Partners, LLC. Paragraph 8.1 of the LIFOC specifically prohibits any construction, demolition, alteration, additions excavations, or improvements to the premises without the prior written consent of the Government.

In addition, the 26 April 2002 Finding of Suitability to Lease (FOSL 3) requires BCT review and approval in the event that a project involves activities that are restricted due to environmental concerns. This evaluation documents the approval of this project based on the finding that IRP-13S and IRP-13W have been determined to pose no unacceptable health risks from surface soils down to groundwater, with the exception of further work to be completed by the Navy at IRP-13S. Therefore, use restrictions that prohibit soil disturbance above groundwater elevations are no longer necessary. These conditions are further discussed below.

2. Use Restrictions:

The FOSL, Sections 4.1, 4.2, 4.8, 4.12, and 4.16 address the specific environmental conditions that are relevant to this project. Although each section of the FOSL addresses a different environmental issue, each of the relevant sections except 4.16 contains the same use restriction, which is that the lessee shall not conduct any subsurface excavation, digging, drilling or other disturbance of the surface within the entire CO area without the prior approval of the Navy and the BCT. Section 4.8 prohibits access or occupancy of existing buildings or newly constructed buildings, and Section 4.16 requires that monitoring wells, surface water gauging locations and their associated equipment shall not be altered, disturbed or removed without the prior review and approval of the DON and BCT.

3. Proposed Project:

In preparation for construction of the Tustin Villas Project, Lennar Communities is proposing to perform surface grading activities; specifically, over-excavation to a depth of approximately 5 feet. The grading activities will be confined to depths above the groundwater table. Grading activities are scheduled to start in 2004. All remediation system equipment, piping and groundwater monitoring and extraction wells associated with the affected sites shall be protected in place. Although there is an indoor air quality restriction in effect for this site, implementation of the project raises no indoor air quality issues because the project does not require access or occupancy of any buildings.

4. Current Environmental Clean Up Program:

IRP-13S consists of two Areas of Concern: ST-72B, an inactive vehicle maintenance facility, and MWA -18, an inactive wash area. 1,2,3-trichloropropane (1,2,3-TCP) and trichloroethene (TCE) have historically been detected in soil and groundwater at IRP-13S. 1,2,3-TCP is the predominant soil contaminant at ST-72 whereas TCE is the predominant contaminant at MWA-18; the primary contaminant impacting groundwater at the site is 1,2,3-TCP.

The Navy is completing a ROD to document selection of hydraulic containment with soil hot spot removal as the final remedy at IRP-13S. The soil hot spot removal action is scheduled for the MWA-18 area only, which is located in the southwestern portion of the site immediately east of Severys Road and approximately 100 feet north of the proposed Valencia North Loop Road (see Attachment 1). The soil at ST-72 has been determined to not pose any unacceptable risks. Excavation at MWA-18 is planned for soils with TCE greater than 400 micrograms per kilogram ($\mu\text{g/kg}$). The proposed excavation is to approximately 14 to 16 feet below ground surface, with the volume of contaminated soil to be removed estimated at 2,450 cubic yards. The Navy is scheduled to complete the soil removal in 2004. No grading can occur in this area until the Navy completes this soil removal work. The Navy has fenced off this area to designate it as restricted until soil removal activities are completed.

Three groundwater monitoring wells at IRP-13S (IS72MW01U, IS72MW01S, 1572MW01D) are located within the project area. These wells shall be protected from damage or disturbance during grading work.

IRP-13W (Drum Storage Area No. 3) consists of two former disposal areas. In 1997, a removal action was conducted to excavate shallow contaminated soil. Confirmation samples were collected and analyzed for polynuclear aromatic hydrocarbons (PAHs), petroleum hydrocarbons, lead, and polychlorinated biphenyls (PCBs). Based on the confirmation sampling results, which indicated the concentrations in remaining soils were less than the respective U.S. Environmental Protection Agency Preliminary Remediation Goals for PAHs, lead, and PCBs, No Further Action (NFA) was recommended for soil at IRP-13W.

Based on the 2003 shallow groundwater investigation findings presented in the OU-4 Technical Memorandum, further evaluation of groundwater at IRP-13W will be conducted under a feasibility study. However, the surface soil was found to be free of contamination.

5. Potential Project Impacts on Environmental Clean up Program

IRP-13S: The Navy is currently finalizing the ROD for OU-1A, and the proposed soil hot spot removal is planned for 2004. Implementation of the project will not interfere with the site clean up provided that the Navy completes the soil hot spot removal action at IRP 13S (specifically at MWA-18), and the BCT approves the soil removal portion of the OU 1A remedial action. Although there is an indoor air quality restriction in effect for this site, implementation of the project raises no indoor

air quality issues because the project does not require access or occupancy of any buildings.

IRP-13W: The Navy has concluded that contamination within soils is below U.S. Protection Agency Preliminary Remediation Goals at IRP-13W. The Navy will conduct further groundwater evaluations at IRP-13W. Implementation of the project will not interfere with the site clean up because the lessee's activities will be confined to depths above groundwater elevations. Although there is an indoor air quality restriction in effect for this site, implementation of the project raises no indoor air quality issues because the project does not require access or occupancy of any buildings.

6. Conclusions and Recommendations

The project may be approved, provided that the following conditions are met:

1. The portion of the project in the footprint of IRP-13S may not proceed until the Navy completes the soil hot spot removal action and the BCT approves the soil removal portion of the OU-1A remedial action. The site will be fenced to ensure that the area is not disturbed until soil removal activities are completed and BCT approval is obtained.
2. All remediation system equipment, piping and groundwater monitoring and extraction wells associated with the affected sites shall be protected in place.

7. Attachments:

- a. IRP-13S soil excavation figure.
- b. Excerpt, Final Technical Memorandum, Shallow Groundwater Investigation for Operable Unit 4, Former Marine Corps Air Station Tustin, Tustin, California, June 2004

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Memorandum. Conclusions and recommendations for Areas A and B are presented in Section 6.

1.7.7 IRP-13W – Drum Storage Area No. 3

IRP-13W, Drum Storage Area No. 3, is located in the northern portion of Former MCAS Tustin (Figure 1-2). The site consists of two former disposal areas. The first area is located east and south of former Building 98, which has been demolished. The second area is located on the western side of Building 16, adjacent to Severyns Road. A former underground storage tank (UST) was located on the site just west of Building 16. Future land use at IRP-13W is designated as medium-density residential, although a narrow portion of the site is also within an area designated for a community park and roads (City of Tustin 1998).

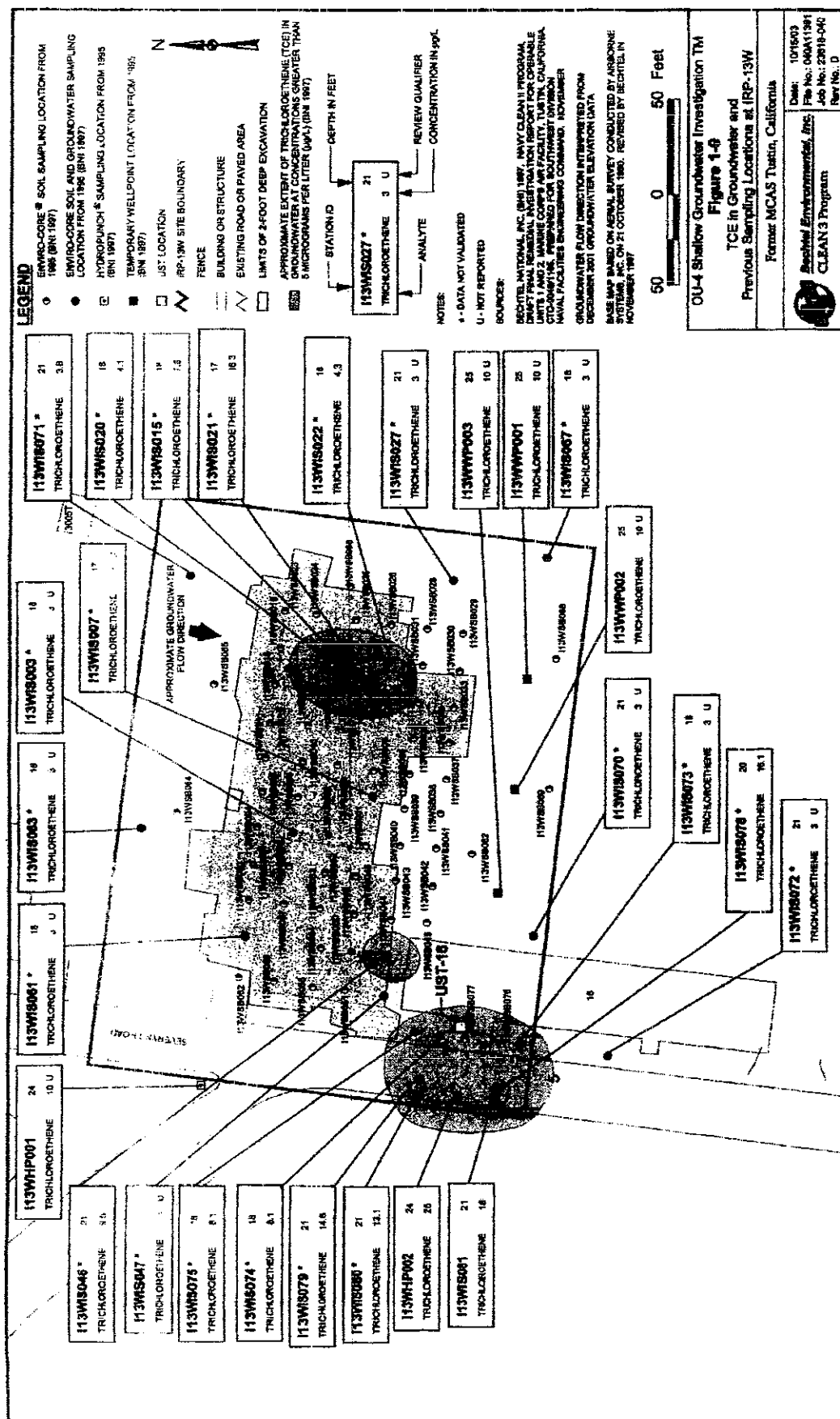
1.7.7.1 SITE HISTORY

A VSI conducted during the RFA indicated that, for 10 years starting in the mid-1960s, approximately 2,640 gallons of liquid wastes was disposed on the ground surface in the area east and south of former Building 98. Materials used and probably disposed in this area included hydraulic fluid, diesel fuel, leaded gasoline, oil, paint stripper, battery acid, and solvents. This area is now paved and is clear of stored materials. In the area on the western side of Building 16, solvents used to wash down the building floor were allowed to drain along the outside edge of the building (JEG 1992).

1.7.7.2 NATURE AND EXTENT OF CONTAMINATION

The nature and extent of contamination interpreted during previous investigations at IRP-13W are summarized in this subsection; a more detailed description is provided in the RI Report (BNI 1997b). IRP-13W was originally investigated during the SI conducted in 1991, which resulted in a recommendation for further sampling. This sampling was conducted during the RI in 1996. TCE was the predominant contaminant reported in groundwater at IRP-13W. Figure 1-9 depicts previous soil and groundwater sampling locations at IRP-13W and shows the estimated areal extent of TCE in groundwater at concentrations exceeding 5 µg/L, which is distributed in three distinct areas at IRP-13W.

A soil gas survey was performed during the SI to determine locations for collecting soil and groundwater samples (JEG 1993). Soil and groundwater samples collected during the SI were analyzed for VOCs, SVOCs, TPH, pesticides, PCBs, and metals. TRPH and bis(2-ethylhexyl)phthalate were reported in shallow soil at concentrations up to 55,000 mg/kg and 3,700 µg/kg, respectively. Dichlorodiphenyltrichloroethane was reported in one of the shallow soil samples (82 µg/kg). TPH (as jet propellant grade 5 [JP-5]) was reported in the deep soil sample collected adjacent to UST-16 (Figure 1-9) at a concentration of 2,000 mg/kg. The groundwater sample collected in the same location as the deep soil sample had TCE and JP-5 at concentrations of 12 and 3,700 µg/L, respectively. Selenium was reported in all four groundwater samples at concentrations up to 197.1 µg/L.



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Table 1-12 presents the frequency of reporting and the range of concentrations of the COPCs identified in soil at IRP-13W during the RI (BNI 1997b). Soil samples were analyzed for VOCs, TRPH, PAHs, PCBs, pesticides, and metals. The results indicated that shallow soil (2 feet bgs or less) was contaminated with TRPH, metals (principally lead, cadmium, and zinc), TCE, and PAHs. Except for TCE, this contamination was limited to shallow soils. TRPH was also reported in soils collected at depths from 17 to 21 feet bgs adjacent to former UST-16.

In 1997, OHM Remediation Services Corp. (OHM) conducted a removal action to excavate shallow contaminated soils at the site (OHM 1998). The excavation covered an area approximately 240 by 100 feet to a depth of approximately 2 feet bgs (Figure 1-8). During and subsequent to the excavation activities, 275 confirmation samples were collected and analyzed for PAHs, TPH as diesel, lead, and PCBs. Confirmation sampling results indicated that the excavation was successful in removing contaminated soils to a degree that concentrations in remaining soils were below respective U.S. EPA PRGs for PAHs, lead, and PCBs. Based on confirmation sampling results, NFA was recommended for soil at IRP-13W.

Table 1-12 also presents the frequency of reporting and the range of concentrations of the COPCs identified in groundwater at IRP-13W during the RI. Groundwater samples were analyzed on-site for VOCs and metals. Nine metals were reported in groundwater; however, all reported concentrations were less than background values. TCE was reported in groundwater at concentrations up to 25 µg/L and exceeded its MCL (5 µg/L) in 10 of 26 samples (Figure 1-9).

1.7.7.3 CONTAMINANT FATE AND TRANSPORT

Because of the soil removal action, no vadose zone leaching analysis was performed for IRP-13W (BNI 1997b).

Contaminant transport within the saturated zone at IRP-13W was addressed by the stationwide groundwater transport modeling conducted as part of the RI (BNI 1997b). Stationwide numerical models were developed to assist the fate and transport analysis of the TCE plume at IRP-13W. The results of the analysis indicated that concentrations of TCE would be reduced to less than 5 µg/L within the next 10 years as a result of hydrodynamic dispersion in the aqueous phase and adsorption by the soil matrix. These results were incorporated into the risk assessment that evaluated risks using 30-year average contaminant concentrations.

1.7.7.4 RISK ASSESSMENT

A baseline HHRA was performed during the RI to evaluate the risk to human health at IRP-13W (Table 1-4) (BNI 1997b). The HHRA was completed prior to the removal action. Risk from exposure to COPCs in soil at this site was estimated under four scenarios: residential, industrial (office worker), construction worker, and recreational (park user). Exposure to COPCs in groundwater was evaluated under residential and construction worker scenarios.

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Table 1-12
Frequency of Reporting and Range of Concentrations of COPCs in Soil
and Groundwater at IRP-13W

Analyte	Frequency of Reporting	Detection Limit	Range of Concentrations	Unit	Background Level ^a
SOIL					
Volatile Organic Compounds					
acetone	3/39	11-77	7-18	µg/kg	— ^b
carbon disulfide	1/39	5.15-13	1	µg/kg	—
ethylbenzene	1/39	5.15-13	2	µg/kg	—
2-hexanone	3/39	10.3-25	5-10	µg/kg	—
methylene chloride	1/39	11-80	9	µg/kg	—
methyl ethyl ketone	3/39	10.3-25	6-11	µg/kg	—
4-methyl-2-pentanone	3/39	10.3-25	5-31	µg/kg	—
toluene	4/39	5.15-13	1-26	µg/kg	—
1,1,1-trichloroethane	1/39	5.2-13	6	µg/kg	—
trichloroethene	4/39	5.15-13	3-18	µg/kg	—
xylene, total	3/39	5.55-13	2-6	µg/kg	—
Polynuclear Aromatic Hydrocarbons					
anthracene	1/39	2.4-520	370	µg/kg	—
benzo(a)pyrene ^c	6/94	2.4-15,285.6	16-51	µg/kg	—
benzo(k)fluoranthene ^c	1/95	2.6-15,285.6	15	µg/kg	—
benzo(g,h,i)perylene ^c	2/97	2.6-15,285.6	70-81	µg/kg	—
fluoranthene ^c	2/95	2.4-15,285.6	65-100	µg/kg	—
indeno(1,2,3-cd)pyrene ^c	4/95	2.4-15,285.6	16-35	µg/kg	—
2-methyl naphthalene	1/8	329-15,285.6	320	µg/kg	—
phenanthrene ^c	2/93	2.4-15,285.6	36-78	µg/kg	—
pyrene ^c	2/97	2.4-15,285.6	13-37	µg/kg	—
Semivolatile Organic Compounds					
benzoic acid	1/8	1,595.2-74,112	370	µg/kg	—
bis(2-ethylhexyl)phthalate	6/8	329-15,285.6	350-3,700	µg/kg	—
butylbenzylphthalate	1/8	329-15,285.6	1,900	µg/kg	—
2,4-dimethylphenol	2/8	329-15,285.6	360-710	µg/kg	—
di-n-butylphthalate	4/8	1,699.5-2,013	59-1,700	µg/kg	—
di-n-octylphthalate	1/8	329-15,285.6	130	µg/kg	—
dibenzofuran	1/8	392.7-15,285.6	600	µg/kg	—
4-methylphenol	2/8	329-15,285.6	2,500-5,500	µg/kg	—
phenol	2/8	329-15,285.6	88-1,400	µg/kg	—

(table continues)

Section 1 Introduction and Previous Investigations

Table 1-12 (continued)

Analyte	Frequency of Reporting	Detection Limit	Range of Concentrations	Unit	Background Level ^a
Polychlorinated Biphenyls and Pesticides					
Aroclor 1260 ^c	11/95	11-440	280	µg/kg	—
4,4'-DDD	2/34	3.3-88.96	0.79-1.4	µg/kg	—
4,4'-DDE	2/34	3.3-88.96	3.6-3.9	µg/kg	—
4,4'-DDT	5/34	3.3-89.96	3.6-82	µg/kg	—
alpha-chlordane	1/34	1.7-444.8	98	µg/kg	—
gamma-chlordane	1/34	1.7-444.8	200	µg/kg	—
methoxychlor	2/34	17-444.8	9.7-98	µg/kg	—
toxaphene	1/34	164.8-889.6	200	µg/kg	—
Metals					
arsenic	1/43	2-3	2.9-18.4	mg/kg	17.5
barium	1/37	12-21	43.8-455	mg/kg	305
cadmium	4/44	0.9-1.4	0.99-4.4	mg/kg	1.8
chromium (total)	2/44	14.7-19	12.5-85	mg/kg	39.2
copper	1/44	15.9-23.5	14.5-337	mg/kg	41.5
lead ^c	18/91	1-2	1.8-120	mg/kg	23.4
manganese	2/31	2	116-1,370	mg/kg	1,100
silver ^c	1/44	0.59-1.2	1.2	mg/kg	BDL
zinc ^c	4/44	3-4	38.9-667	mg/kg	141
GROUNDWATER					
Volatile Organic Compounds					
methyl ethyl ketone (2-butanone)	1/6	10	4	µg/L	—
trichloroethene	2/7	10	18-25	µg/L	—

Notes:

- ^a background levels for metals were calculated at the 99th percentile concentration; background was not calculated for organic compounds (BNI 1997b)
- ^b dash indicates not applicable
- ^c concentrations reflect the soil removal action at IRP-13W (OHM 1998)

Acronyms/Abbreviations:

- BDL – below detection limit
- COPC – chemical of potential concern
- DDD – dichlorodiphenyldichloroethane
- DDE – dichlorodiphenyldichloroethene
- DDT – dichlorodiphenyltrichloroethane
- IRP – Installation Restoration Program
- µg/kg – micrograms per kilogram
- µg/L – micrograms per liter
- mg/kg – milligrams per kilogram

Section 1 Introduction and Previous Investigations

Exposure to soil resulted in estimated cancer risks to the construction worker (8.8×10^{-5}) and park user (6.0×10^{-5}) that were within NCP's generally acceptable range (10^{-6} to 10^{-4}). Cancer risks estimated for residents (4.4×10^{-4}) and office workers (9.6×10^{-4}) from exposure to soil exceeded the upper bound of NCP's generally acceptable range (1×10^{-4}). Noncancer HI estimates for residents (4.2), industrial workers (1.6), and construction workers (1.5) exceeded the threshold value of 1; the noncancer HI for the park user (0.38) was less than 1. In general, cancer and noncancer risk drivers were PAHs, PCBs, and metals. Based on these risk assessment results, a non-time-critical removal action was recommended for soil at this site (BNI 1997b).

Estimated cancer risks from exposure to groundwater for construction workers (1.5×10^{-5}) and residents (2.5×10^{-8}) were within or below NCP's generally acceptable risk range. Noncancer HIs were estimated at 1.6 for residents and 0.026 for construction workers (Table 1-4). Most of the cancer and noncancer risks were due to TCE. These estimated risks were considered conservative because they were calculated using maximum reported concentrations of contaminants in groundwater.

Cancer and noncancer residential risks were also estimated using 30-year average contaminant concentrations, which were obtained from groundwater modeling during the RI (BNI 1997b). Estimated cancer risk (6.1×10^{-7}) and noncancer HI (0.065) were considered acceptable (Table 1-4). Based on the groundwater modeling and risk assessment results, NFA was recommended for groundwater at the site.

1.7.7.5 SUMMARY

NFA was recommended for soil and groundwater at IRP-13W (OHM 1998, BNI 1997b). The NFA recommendation for soil was based on the results from confirmation sampling after a soil removal action was completed in 1997. The soil removal action was needed because of high reported concentrations of TRPH, metals (principally lead, cadmium, and zinc), TCE, and PAHs in shallow soils (less than 2 feet bgs). The NFA recommendation for groundwater was based on risk assessment results using stationwide groundwater modeling. TCE, the primary risk driver at the site, was reported in groundwater at concentrations up to 25 mg/L. Stationwide groundwater modeling indicated that TCE concentrations would be reduced to less than 5 µg/L within 10 years.

Although NFA was recommended for groundwater, the Navy decided to evaluate potential remedial alternatives for IRP-13W in the draft FFS due to the MCL exceedances. The Navy also decided to collect additional groundwater samples during the investigation described later in this Technical Memorandum to evaluate whether TCE is still present in groundwater at concentrations exceeding 5 mg/L, its MCL. Sampling strategy, procedures, and results from the additional groundwater sampling are detailed in Sections 2, 3, and 4. Conclusions and recommendations are presented in Section 6.

Section 4 Shallow Groundwater Investigation Results

approximate lateral distribution of TCE at concentrations exceeding 5 µg/L in the southern portion of the site.

4.3.2 Other VOCs

Other VOCs reported during this investigation included acetone, carbon disulfide, cis-1,2-DCE, MTBE, and toluene (Table 4-3). Reported concentrations ranged from 0.09 (MTBE) to 4.7 (acetone) µg/L. MTBE and carbon disulfide were reported in one sample, acetone and cis-1,2-DCE were reported in two samples, and toluene was reported in six of the seven total samples.

4.4 IRP-13W

A total of 17 groundwater samples were collected for VOC analysis during 3 sampling rounds at IRP-13W (Table 4-4, Figure 4-4). Four samples (I13WDP001, I13WDP002, I13WDP006, and I13WDP007) were collected at approximately the same locations and depths as I13WHP002, I13WIS081, I13WIS046, and I13WIS021, respectively, where the MCL for TCE (5 µg/L) had been exceeded. Thirteen additional groundwater samples were collected to evaluate the lateral extent of TCE in the first WBZ in the southwestern portion of the site. Results from this investigation indicate the lateral extent of TCE in groundwater at concentrations exceeding 5 µg/L is approximately 270 feet in a northeast-southwest direction and 150 feet in a northwest-southeast direction in the southwestern portion of the site. The southern (downgradient) portion of this TCE plume overlaps the extreme northern (upgradient) portion of the 1,2,3-TCP plume at IRP-13S (Figure 4-4); however, the two plumes are from separate sources. TCE was the only VOC reported at concentrations exceeding its MCL at IRP-13W.

4.4.1 TCE

Table 4-4 presents the analytical results for VOCs reported in groundwater. Figure 4-4 depicts the estimated lateral distribution of TCE in groundwater at concentrations exceeding 5 µg/L in the first WBZ. During previous investigations, TCE was reported in groundwater at concentrations up to 25 µg/L. During this investigation, TCE was reported in all 17 groundwater samples at concentrations up to 16 µg/L (I13WDP005). The MCL for TCE (5 µg/L) was exceeded in 13 of these 17 samples.

In the southwestern portion of the site, reported concentrations of TCE at three current sampling locations were all less than previously reported concentrations (Figure 4-4). TCE was reported at 9.2 µg/L from I13WDP001 (previously reported at 25 µg/L from I13WHP002), 9.9 µg/L from I13WDP002 (previously reported at 18 µg/L from I13WIS081), and 7.6 µg/L from I13WDP007 (previously reported at 9.5 µg/L from I13WIS046).

In the eastern portion of the site, TCE was reported at a concentration of 0.22 µg/L from I13WDP006 (previously reported at 16.3 µg/L from I13WIS021). Based on this result,

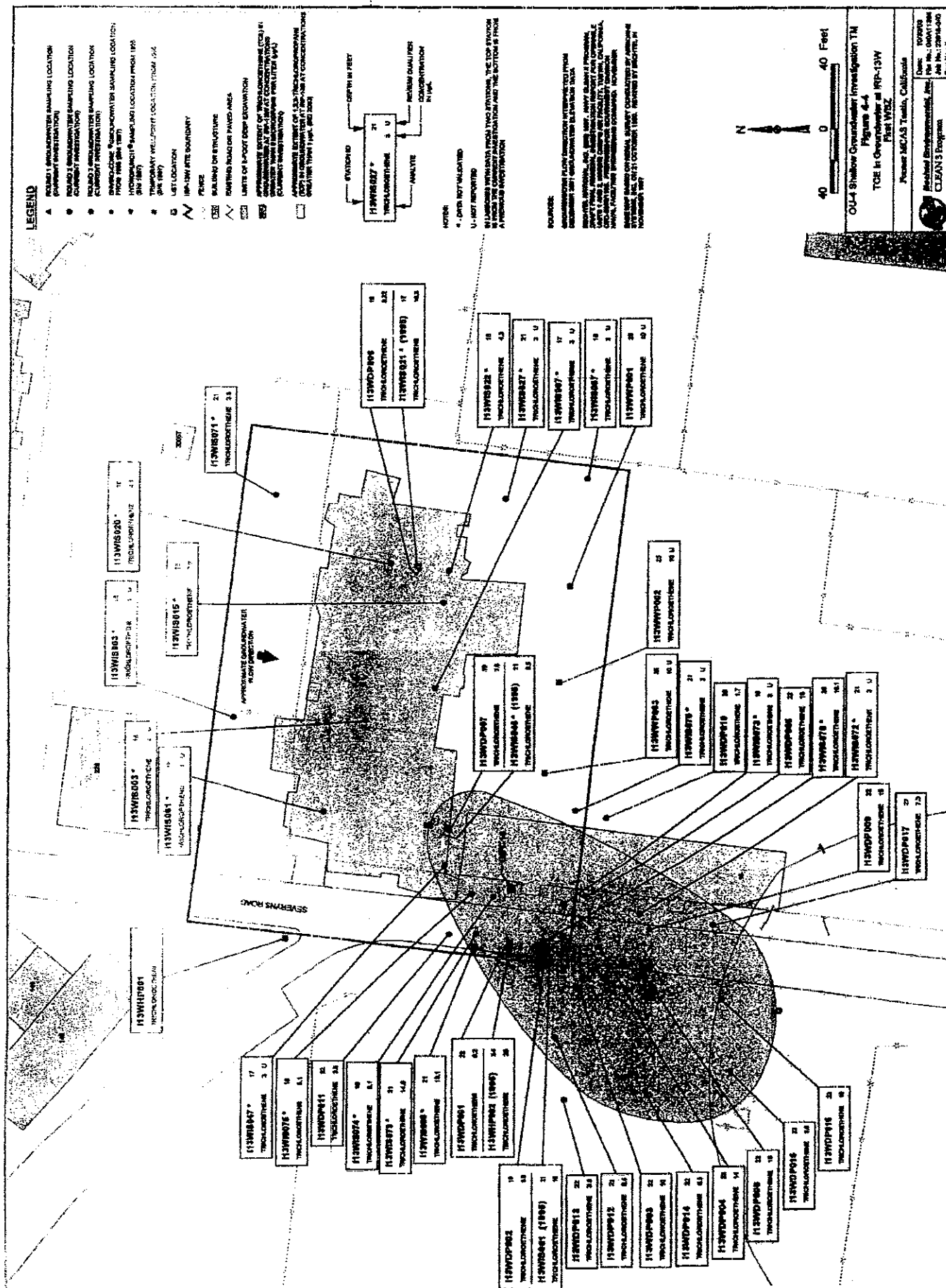


Table 4-4
VOCs Reported in Groundwater at IRP-13W
(concentrations reported in micrograms per liter)

Well	ANALYTE (MCL)									
	Acetone (no MCL)	Bromodichloro- methane (no MCL)	Carbon Disulfide (no MCL)	Chloroform (no MCL)	cis-1,2-DCE (6 C/70 F)	Freon 113* (1,280 C)	MTBE (13 C)	TCE (5 C/F)	1,2,3-TCP (no MCL)	Toluene (150 C/ 1,000 F)
Round 1										
I13WDP001	ND	ND	ND	ND	ND	2.2	ND	9.2 ^b	ND	0.96
I13WDP002	ND	ND	ND	ND	ND	2.8	ND	9.9 ^b	ND	0.94
I13WDP003	ND	0.13	ND	ND	ND	2.5	ND	10 ^b	ND	0.93
I13WDP004	5.9 J	ND	0.21 J	ND	ND	5.1	ND	14 ^b	ND	0.67
I13WDP005	ND	ND	ND	ND	ND	7.9	ND	16 ^b	ND	0.76
I13WDP006	7.9 J	ND	1.4	ND	ND	ND	0.10 J	0.22	ND	0.43
I13WDP007	ND	ND	ND	ND	ND	4.6	ND	7.6 ^b	ND	0.83
Round 2										
I13WDP008	ND	ND	0.17 J	ND	0.13 J	5.8	ND	15 ^b	ND	ND
I13WDP009	ND	ND	ND	ND	0.14 J	11	ND	15 ^b	ND	ND
I13WDP010	ND	ND	0.28 J	ND	ND	0.97	0.60	1.7	ND	ND
I13WDP011	ND	ND	0.27 J	ND	ND	0.42 J	ND	3.5	ND	ND
I13WDP012	ND	0.24 J	ND	1.0	ND	2.1	0.11 J	6.5 ^b	ND	ND
Round 3										
I13WDP013	5.2 J	ND	0.64	0.16 J	ND	1.6	0.12 J	3.6	ND	ND
I13WDP014	5 J	ND	0.3 J	0.17 J	ND	1.1	ND	6.5 ^b	ND	ND
I13WDP015	10 J	ND	0.35 J	0.16 J	ND	2.3	ND	8.6 ^b	ND	0.11 J
I13WDP016	7.3 J	ND	0.44 J	0.13 J	ND	3.9	ND	10 ^b	0.7	0.1 J
I13WDP017	ND	ND	0.43 J	0.12 J	ND	7.1	0.19 J	7.3 ^b	9.0	0.15 J

Notes:

- * Freon 113 was reported as trichlorofluoroethane
- ^b boldface indicates concentrations exceed MCL

Acronyms/Abbreviations:

C - California MCL
DCE - dichloroethene
F - federal MCL
Freon 113 - 1,1,2-trichloro-1,2,2-trifluoroethane
IRP - Installation Restoration Program
µg/L - micrograms per liter

Review Qualifier:

J - estimated value

MCL - maximum contaminant level
MTBE - methyl tert-butyl ether
ND - not detected
TCE - trichloroethene
TCP - trichloropropane
VOC - volatile organic compound

Section 4 Shallow Groundwater Investigation Results

TCE is no longer present in groundwater at concentrations exceeding its MCL in the eastern portion of IRP-13W.

4.4.2 Other VOCs

Other VOCs reported in groundwater during this investigation were acetone, bromodichloromethane, carbon disulfide, chloroform, Freon 113, 1,2,3-TCP, cis-1,2-DCE, MTBE, and toluene (Table 4-4). Reported concentrations ranged from 0.1 µg/L (MTBE) to 11 µg/L (Freon 113). Freon 113, the second most prevalent VOC, was reported in 16 of 17 samples at concentrations from an estimated 0.42 to 11 µg/L. The California MCL for Freon 113 is 1,200 µg/L.

1,2,3-TCP was reported at concentrations of 0.7 and 9 µg/L in samples from I13WDP016 and I13WDP017, respectively. Currently, there is no MCL for 1,2,3-TCP; however, a remediation goal of 0.5 µg/L has been proposed for 1,2,3-TCP in groundwater at OU-1A (IRP-13S) (Figure 4-4), which is directly south of IRP-13W at Former MCAS Tustin (BEI 2003c).

4.5 MMS-04

A total of six groundwater samples were collected from MMS-04 and analyzed for VOCs. Three of the samples (CMM4DP001, CMM4DP003, and CMM4DP005) were collected at approximately the same locations and depths as CMM4HP003, CT18WP018, and 19784-646, where the MCLs for TCE and PCE (5 µg/L) had been exceeded during previous investigations, and three samples were collected downgradient from these locations (Figure 4-5). TCE and MTBE were the only VOCs reported at concentrations exceeding their respective MCLs during the current investigation at MMS-04 (Table 4-5).

TCE was reported in groundwater at concentrations exceeding its MCL in one of six samples from MMS-04. Results from this investigation indicate the extent of TCE at concentrations greater than 5 µg/L is approximately 20 feet in a northeast-southwest direction and 12 feet in a northwest-southeast direction.

MTBE was reported in groundwater at concentrations exceeding its MCL (13 µg/L) in four of six samples from MMS-04. The extent of MTBE at concentrations greater than 13 µg/L is approximately 140 feet in a northeast-southwest direction and 60 feet in a northwest-southeast direction. MTBE reported in groundwater at MMS-04 is likely to have originated from USI Site 222, which is being addressed under the PCAP.

The maximum concentration of PCE, which had been reported during a previous investigation at a concentration exceeding its MCL (5 µg/L), was 1.0 µg/L.

4.5.1 TCE

Table 4-5 presents analytical results for VOCs reported in groundwater. Figure 4-5 shows the distribution of TCE in groundwater in the first WBZ at MMS-04. During previous investigations, TCE was reported at concentrations exceeding its MCL in 2 of

Section 6 Conclusions and Recommendations

6.2 SITES RECOMMENDED FOR FURTHER ACTION (OU-4B)

Further action is recommended for IRP-5S(a), IRP-6, IRP-11 (Area B), IRP-13W, MMS-04 (Area B), and the MPA based on current groundwater investigation results and/or quarterly groundwater monitoring results as summarized below.

6.2.1 IRP-5S(a)

Further action is recommended for groundwater at IRP-5S(a) based on current groundwater sampling and current risk assessment results for residential exposure to soil and groundwater (combined). During the current investigation, TCE was reported in shallow groundwater at concentrations up to 170 µg/L, whereas TCE was previously reported at only one location at a concentration of 6 µg/L. The lateral extent of TCE in groundwater in the first WBZ at concentrations exceeding 5 µg/L is estimated to be approximately 850 feet in a north-south direction and 330 feet in an east-west direction (Figure 4-1). Total cancer risk from exposure to soil and groundwater combined (using U.S. EPA criteria) was estimated to be 1.1×10^{-3} , which exceeds the upper bound of the NCP generally acceptable risk range (10^{-4}). Total noncancer HI was estimated to be 7.6, which exceeds the noncancer HI threshold value of 1.

During the current investigation, TCE was reported in one sample from the second WBZ at an estimated concentration of 0.45 µg/L (Figure 4-1). This sample was collected beneath a first-WBZ sample with a reported TCE concentration of 150 µg/L. Based on these results, it does not appear that TCE has migrated into the second WBZ at significant concentrations.

6.2.2 IRP-6

Further action is recommended for groundwater at IRP-6 based on recent quarterly groundwater monitoring results. These results (from 1999 to 2001) indicate that 1,1-DCE, the primary risk driver at the site, is present in groundwater at concentrations up to 500 µg/L, whereas the maximum previously reported concentration was 150 µg/L. These results do not support previous groundwater modeling results, which indicated that concentrations of 1,1-DCE would be decreasing.

6.2.3 IRP-11 (Area B)

Further action is recommended for groundwater at IRP-11 Area B based on current groundwater sampling and risk assessment results for residential exposure to groundwater. Current groundwater sampling results indicate that concentrations of TCE are decreasing as predicted by groundwater modeling. During the current investigation, TCE was reported in groundwater at concentrations up to 8.5 µg/L, whereas the maximum previously reported concentration was 15 µg/L. However, cancer risk from exposure to groundwater was estimated to be 2.9×10^{-4} (using U.S. EPA criteria), which exceeds the upper bound of the NCP generally acceptable risk range (10^{-4}). The

Section 6 Conclusions and Recommendations

noncancer HI from exposure to groundwater was estimated to be 2.0, which exceeds the HI threshold value of 1.

NFA is recommended for soil based on current risk assessment results for residential exposure to soil. Cancer risk from exposure to soil was estimated to be 1.1×10^{-8} (using U.S. EPA criteria), which does not exceed the NCP point of departure for acceptable risks (10^{-6}). The noncancer HI from exposure to soil was estimated to be 0.074, which does not exceed the HI threshold value of 1.

6.2.4 IRP-13W

Further action is recommended for groundwater at IRP-13W based on current groundwater sampling and current risk assessment results for residential exposure to groundwater. During the current investigation, TCE was reported in shallow groundwater at concentrations up to 16 $\mu\text{g/L}$. The lateral extent of TCE in groundwater at concentrations exceeding 5 $\mu\text{g/L}$ (the MCL for TCE) is approximately 270 feet in a northeast-southwest direction and 150 feet in a northwest-southeast direction (Figure 4-4), which is larger than was estimated during the RI (BNI 1997b). Cancer risks from exposure to groundwater were estimated to be 4.5×10^{-4} (using U.S. EPA criteria), which exceeds the upper bound of the NCP generally acceptable risk range (10^{-4}). The total noncancer HI from exposure to groundwater was estimated to be 3.0, which exceeds the HI threshold value of 1.

NFA is recommended for soil based on current risk assessment results for residential exposure to soil. Cancer risk from exposure to soil was estimated to be 3.2×10^{-5} (using U.S. EPA criteria), which is within the NCP generally acceptable risk range (10^{-6} - 10^{-4}). The noncancer HI from exposure to soil was estimated to be 2.8. Although the HI exceeds the HI threshold value of 1, the only principal risk driver in soil is manganese. Data presented in the RI Report indicated that manganese reported in soil at IRP-13W is naturally occurring and did not result from site-related activities (BNI 1997b).

6.2.5 MMS-04 (Area B)

Further action is recommended for groundwater at MMS-04 Area B based on current groundwater sampling and risk assessment results for residential exposure to groundwater. Current groundwater sampling results indicate that concentrations of TCE are decreasing as predicted by groundwater modeling. During the current investigation, TCE was reported in shallow groundwater at concentrations up to 7.4 $\mu\text{g/L}$, whereas the maximum previously reported concentration was 18 $\mu\text{g/L}$. However, total cancer risk from exposure to groundwater (combined) was estimated to be 6.6×10^{-4} (using U.S. EPA criteria), which exceeds the upper bound of the NCP generally acceptable risk range (10^{-4}). The noncancer HI from exposure to groundwater was estimated to be 5, which exceeds the HI threshold value of 1.

**PROJECT ENVIRONMENTAL EVALUATION FOR SITE GRADING FOR THE
TUSTIN VILLAS PROJECT at FORMER MARINE CORPS AIR STATION
(MCAS) TUSTIN, CALIFORNIA**

AFFECTED AREAS/PARCELS: Carve-Out Area 5 (CO 5), Parcel 24, Sites UST-16, and UST-268

1. Purpose:

This evaluation provides the basis for approval of activities requested by Lennar Communities on April 14, 2004 in conjunction with the Tustin Villas Project.

This evaluation is required by the 11 March 2003 Lease in Furtherance of Conveyance (LIFOC) between the United States of America and Marble Mountain Partners, LLC. Paragraph 8.1 of the LIFOC specifically prohibits any construction, demolition, alteration, additions excavations, or improvements to the premises without the prior written consent of the Government.

In addition, the 26 April 2002 Finding of Suitability to Lease (FOSL 3) requires BCT review and approval in the event that a project involves activities that are restricted due to environmental concerns. This evaluation documents the approval of this project based on the finding that UST-16 and UST 268 have been determined to be free of contamination in the surface soils down to groundwater. Therefore, use restrictions that prohibit soil disturbance above groundwater elevations are no longer necessary. These conditions are further discussed below.

2. Use Restrictions:

The FOSL, Sections 4.1, 4.5, 4.12, and 4.16 address the specific environmental conditions that are relevant to this project. Although each section of the FOSL addresses a different environmental issue, each of the relevant sections except 4.16 contains the same use restriction, which is that the lessee shall not conduct any subsurface excavation, digging, drilling or other disturbance of the surface within the entire CO area without the prior approval of the Navy and the BCT. Section 4.16 requires that monitoring wells, surface water gauging locations and their associated equipment shall not be altered, disturbed or removed without the prior review and approval of the DON and BCT.

3. Proposed Project:

In preparation for construction of the Tustin Villas Project, Lennar Communities is proposing to perform surface grading activities; specifically, over-excavation to a depth of approximately 5 feet. The grading activities will be confined to depths above the groundwater table. Grading activities are scheduled to start in 2004. All remediation system equipment, piping and groundwater monitoring and extraction wells associated with the affected sites shall be protected in place.

4. Current Environmental Clean Up Program:

UST 16 is a former fuel storage tank site co-located at IRP-13W. The Navy completed removal of soil contamination in March 2004. Groundwater samples taken on 4 May 04 indicate no GW contamination. Therefore, the Navy submitted a closure report on 15 July 2004 to the RWQCB requesting site closure.

minor

UST-268 includes approximately two acres in the southwestern portion of Parcel 24. The site was a fueling station and contained UST-18A and UST-18B. After removal of these two USTs, these tanks were replaced with UST-268 in 1984. The station was taken out of service in December 1998. Removal activities, consisting of four phases of soil excavation, occurred between December 1998 and February 2003. Approximately 23,000 tons of contaminated soil was removed and treated. The site was backfilled with clean overburden soil, treated soil, and imported clean fill. The final confirmation soil sampling indicated total petroleum hydrocarbons and benzene concentrations in soil were less than the target cleanup goals. Based on results of post-excavation verification sampling at UST-268, the Navy recommended No Further Action (NFA) for soil; the California Regional Water Quality Control Board Santa Ana Region (RWQCB) has concurred with a NFA recommendation for soil at UST-268 (RWQCB letter of March 10, 2004).

Groundwater verification samples collected in May 2004 indicated that the maximum benzene concentration was 34 micrograms per liter [$\mu\text{g/L}$]. RWQCB recommended that the Navy submit a closure report based on this latest round of sampling data. The Navy is scheduled to submit the closure report on August 31, 2004.

The Navy may conduct additional site characterization of groundwater at UST-268. Six monitoring wells (268MW01, 268MW02, 268MW03, 268MW04, 268MW05, and 268MW06) were installed in December 2003 at UST 268. These wells shall be protected from damage or disturbance during grading work.

5. Potential Project Impacts on Environmental Clean up Program

UST-16: Due to the fact that the Navy has completed its soil removal action at this site and has recommended the site for closure, implementation of the project will have no impact on this site.

UST-268: The Navy recommended an NFA for soil at UST 268, and the RWQCB has concurred with that recommendation, in the attached letter dated March 10, 2004. Implementation of the project will not interfere with the site clean up because the lessee's activities will be confined to soil depths above groundwater elevations.

6. Conclusions and Recommendations

The project may be approved, provided that all remediation system equipment, piping and groundwater monitoring and extraction wells associated with the affected sites shall be protected in place.

7. Attachments:

- a. Excerpt, Draft Closure Report for Underground Storage Tanks 16, 27A, and 27B, Marine Corps Air Station Tustin, Tustin, California, July 15, 2004
- b. RWQCB letter, March 10, 2004, Comments on Final Site Assessment Report for Underground Storage Tank 268 (Including Underground Storage Tanks 18A and 18B), Former Marine Corps Air Facility, Tustin

3.0 UST-16 Activities

3.1 Phase 1 Activities

The following subsections describe activities performed at UST-16 including Phase 1 soil excavation, confirmation sampling, onsite treatment, and backfill and compaction.

3.1.1 Soil Excavation

Shaw Environmental, Inc. excavated the area of the former UST-16 location from May to June 2000. The approximate dimensions of the excavation were 40-feet wide by 90-feet long with depths ranging from 14 to 18 feet below ground surface. The eastern wall of the excavation was adjacent to the western wall of Building 16 (Figure 3). Approximately 682 tons of TPH-contaminated soil were removed and treated using the onsite TDU. One sidewall sample (17565-1512) and one bottom floor sample (17565-1511) at 18 feet below ground surface along the east wall adjacent to a compressor shed had TPH as diesel concentrations of 4,900 and 1,200 mg/kg, respectively. One bottom floor sample (17565-1516) along the east wall, south of the compressor shed, had a TPH as diesel concentration of 2,800 mg/kg. TCE was detected in 4 of the 18 samples taken, and ranged from 1.0 to 2.8 µg/kg. No excavation groundwater was encountered during excavation activities. Sampling results are shown in Table 1.

Shaw Environmental, Inc. performed the excavation activity in accordance with SCAQMD Rule 1166, Contaminated Soil Mitigation Plan Permit. A copy of the SCAQMD permit to excavate soil is attached in Appendix C.

3.1.2 Progress Sampling

Shaw Environmental, Inc.'s *Confirmation Sampling Strategy for Underground Storage Tank Area 22 (Former Fuel Farm)* (OHM, 1995b) provided grid spacing requirements for confirmation sampling of 50-feet by 50-feet, which were presented to and approved by the RWQCB in November 1995. Given the smaller size of the excavation, grid spacing that was 20-feet by 20-feet was used for this project.

Eighteen soil samples were collected from the sidewalls and bottom floor of the excavation and analyzed for TPH as diesel and gasoline using California Leaking Underground Fuel Tank (CA LUFT) Method 8015 Modified and volatiles, using U.S. Environmental Protection Agency (EPA) Method 8260.

One sidewall sample (17565-1512) and one bottom floor sample (17565-1511) at 18 feet below ground surface along the east wall adjacent to a compressor shed had TPH concentrations of 4,900 and 1,200 mg/kg, respectively. One bottom floor sample (17565-1516) along the east wall south of the compressor shed had a TPH as diesel concentration of 2,800 mg/kg. Locations of

the sampling points at UST-16 excavation are shown in Figure 3. Sampling results are summarized in Table 1. Summary of the trip blank analyses for soil excavation and other field sampling activities are shown on Table 5. Sampling activities were conducted in accordance with the chemical data acquisition plan (CDAP) (OHM, 1995d). Laboratory reports and chain-of-custody (COC) forms are presented in Appendix D.

3.1.3 Overburden Stockpile Management

A photoionization detector (PID) was used to monitor the soil during of the excavation activities. Excavated soil was segregated into "overburden" soil and "impacted" soil stockpiles, based on the PID readings and soil appearance. Soil that exhibited low PID readings and a nonimpacted appearance was stockpiled as "overburden" soil. Soil with elevated PID readings or an impacted appearance (such as dark staining and strong hydrocarbon odor) was stockpiled as "impacted" soil.

3.1.4 Soil Treatment/Disposal

Approximately, 682 tons of petroleum hydrocarbon-impacted soil was transported to the onsite TDU for thermal treatment during Phase 1 of the excavation. The TDU treatment reduced the petroleum hydrocarbon-impacted soil to a concentration of less than 100 mg/kg for TPH.

3.1.5 Backfilling and Compaction

The excavation, onsite soil treatment, and backfilling activities were conducted concurrently during the Phase 1 excavation activities. Treated and nonimpacted overburden soil (i.e., TPH as diesel concentrations less than 1,000 mg/kg) was used as backfill upon receipt of the confirmation analytical results from the excavation sidewalls and floors. The treated soil was reconditioned to near optimum moisture content using tested and treated water from a local hydrant. Nonimpacted and treated soil was transported from the stockpile areas, placed into the excavation in 6-inch to 12-inch lifts, and compacted.

3.1.6 Site Restoration

Following backfill and compaction activities, the site was restored to near pre-excavation condition. Final grading was performed to ensure proper surface-water runoff and drainage.

3.1.7 Excavation Groundwater Sampling

Shaw Environmental, Inc. conducted post-excavation groundwater sampling, on May 26, 2000, by collecting one water sample (17565-1510) from the excavation floor at 18 feet below ground surface and analyzing it for TPH as diesel and gasoline using CA LUFT Method 8015M and analyzing it for VOCs using EPA Method 8260B. Benzene, toluene, ethylbenzene, and total xylenes (BTEX) results were below the Department of Health Services (DHS) Drinking Water Standards and Primary Maximum Contaminant Levels (MCLs). The TCE concentration was 7.4

µg/L, corresponding with the TCE plume at IRP-13W. TPH as diesel was detected at a concentration of 30 mg/L, as shown in Table 4.

3.1.8 Field Quality Assurance/Quality Control

A contractor quality control (QC) engineer was present, during the field activities, to ensure that the Shaw Environmental, Inc. work plan (OHM, 1995a) was followed. Field activities were conducted in accordance with the OHM CDAP (OHM, 1995d), and Technical Memorandum Numbers 1 through 4, (OHM, 1995e).

3.1.9 Equipment Decontamination and Waste Management

Personal protective equipment was properly disposed of at a Class III landfill. Rinsate water generated during decontamination operations was either treated at the onsite GAC groundwater treatment system or the Petroleum Corrective Action Program (PCAP) treatment system.

A decontamination station was established at the contamination reduction zone, located between the construction support zone (adjacent to the excavation activities) and the exclusion zone (working area) for personnel, equipment, and vehicles. Equipment and vehicles were dry brushed or spray washed using a pressure washer.

3.2 Phase 2 Activities

The following subsections describe activities performed at UST-16 including Phase 2 delineation, soil excavation, confirmation sampling, off-site treatment, and backfill and compaction.

3.2.1 Delineation

TPH-contaminated soil was left in place along the eastern sidewall of the excavation due to the proximity of Building 16. On September 5, 2000, Shaw Environmental, Inc. installed a hand auger (UST-16-HA-01) within the compressor shed and collected samples at 3, 6, 9, 12, 15, and 18 feet below ground surface. TPH concentrations were not detected in the 3-, 6-, 9-, and 12-foot samples. TPH concentrations were detected in the 15- and 18-foot samples at 350 and 520 mg/kg, respectively, which are below the TCL. Sample results for volatiles were below laboratory detection limits. Figures 3 and 4 show the hand-auger location.

3.2.2 Soil Excavation

Lennar Homes (one of the MCAS Tustin developers) removed the compressor shed and demolished Building 16 in January 2004, before Phase 2 soil excavation.

In February 2004, 135 tons of TPH-contaminated soils were excavated from the area adjacent to Building 16. Contamination extended 30 feet in length, and 20 feet in width, with a depth between 17 and 21 feet below ground surface. Seven soil samples (844013-1131 to

844013-1137), including one duplicate, were collected between 12 and 21 feet below ground surface and analyzed for TPH as diesel and VOCs. Two bottom floor and four sidewall confirmation samples were collected. Figure 4 shows the limits of the excavation. The sample results were below laboratory detection limits.

Shaw Environmental, Inc. performed the excavation activity in accordance with SCAQMD Rule 1166, Contaminated Soil Mitigation Plan Permit. A copy of the SCAQMD permit to excavate soil is attached in Appendix C.

3.2.3 Confirmation Sampling

Given the smaller size of the excavation, grid spacing for soil sampling of 20-feet by 20-feet was used for Phase 2.

Seven soil samples (844013-1131 to 844013-1137, including one duplicate) were collected from the northeast and southeast sidewalls and from the bottom floor of the excavation and analyzed for TPH as diesel and gasoline using CA LUFT Method 8015M, and analyzed for volatiles, using EPA Method 8260. Sample results were below laboratory detection limits.

The locations of the Phase 2 confirmation samples and the limits of the excavation are presented in Figure 4. Analytical results for the Phase 2 confirmation samples are presented in Table 3. Sampling activities were conducted in accordance with the QC plan (IT, 2000b) and the Standard Quality Procedures and Standard Operating Procedures Manual (IT, 2000c). Laboratory reports and chain-of-custody forms are presented in Appendix D.

3.2.4 Overburden Stockpile Management

A PID was used to monitor the soil during of the excavation activities. Excavated soil was segregated into "overburden" soil and "impacted" soil stockpiles, based on the PID readings and soil appearance. Soil that exhibited low PID readings and a nonimpacted appearance was stockpiled as "overburden" soil. Soil that exhibited elevated PID readings or an impacted appearance (such as dark staining and strong hydrocarbon odor) was stockpiled as "impacted" soil.

3.2.5 Soil Treatment/Disposal

A total of 135 tons of petroleum hydrocarbon-impacted soil was stockpiled on Visqueen™ and later transported off site to TRS for thermal desorption (Appendix E).

3.2.6 Backfilling and Compaction

The excavation, off-site soil treatment, and backfilling activities were conducted concurrently during Phase 2 excavation activities. Treated and nonimpacted overburden soil (i.e., TPH as

diesel concentrations less than 1,000 mg/kg) was used as backfill upon receipt of the confirmation analytical results from the excavation sidewalls and floors.

3.2.7 Site Restoration

The site was restored to near pre-excavation condition following backfill and compaction activities. Final grading was performed to ensure proper surface-water runoff and drainage.

3.2.8 Groundwater Verification Sampling

Shaw Environmental, Inc. conducted post-excavation groundwater verification sampling, on May 4, 2004, by installing three HP borings (HP-01 to HP-03) from 24 to 28 feet below ground surface in locations within and surrounding the overall excavation (Figure 5). Samples were analyzed for TPH as diesel and gasoline using CA LUFT Method 8015 Modified and volatile organic compounds (VOCs) using EPA Method 8260B.

HP-01 was located upgradient of the excavation; HP-02 was in the former tank area; and HP-03 was located downgradient of the excavation.

Analytical results indicated that TPH as diesel was detected at two out of the three locations. TPH as diesel results were 0.12 and 0.16 milligrams per kilogram (mg/L). Toluene was detected in the three groundwater sample results and ranged in concentration from 1 to 1.1 micrograms per liter (µg/L). TCE was detected in the three groundwater samples and ranged in concentration from 2.2 to 7.8 µg/L. The TCE results correspond with the TCE plume at IRP-13W. Table 4 presents the groundwater verification results.

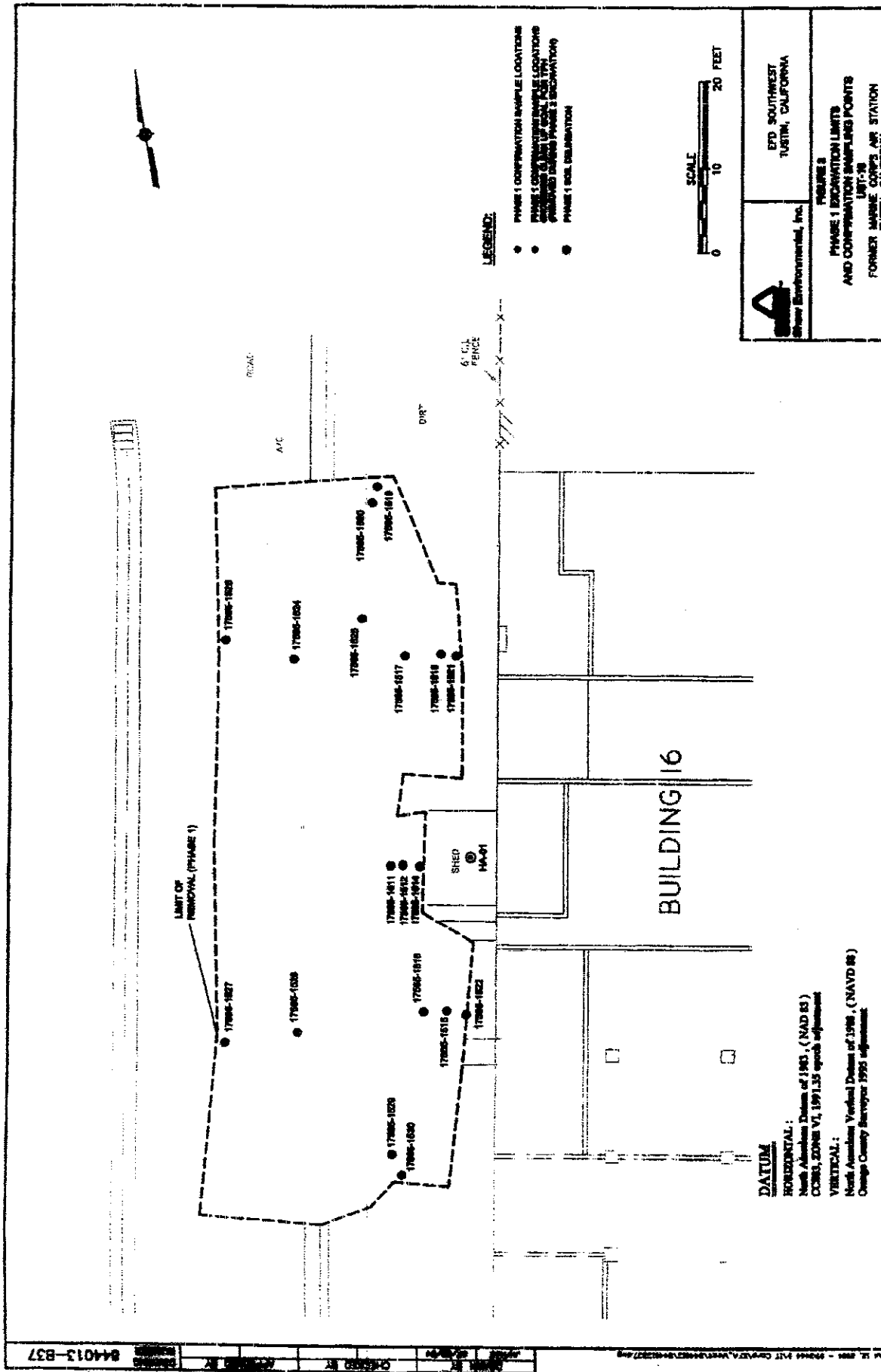
3.2.9 Field Quality Assurance/Quality Control

A contractor QC engineer was present, during the field activities, to ensure that the two Shaw Environmental, Inc. work plans (OHM, 1995a and Shaw, 2004) were followed. Field activities were conducted in accordance with these work plans and with the QC plan (IT, 2000b) and the Standard Quality Procedures and Standard Operating Procedures Manual (IT, 2000c).

3.2.10 Equipment Decontamination and Waste Management

Personal protective equipment was properly disposed of at a Class III landfill. Rinsate water generated during decontamination operations was treated at the PCAP treatment system.

A decontamination station was established at the contamination reduction zone, located between the construction support zone (adjacent to the excavation activities) and the exclusion zone (working area) for personnel, equipment, and vehicles. Equipment and vehicles were dry brushed or spray washed using a pressure washer.





North American Vented Domes of 1901, (NAVD 03)
Omaha County Surveyor 1995 adjustment



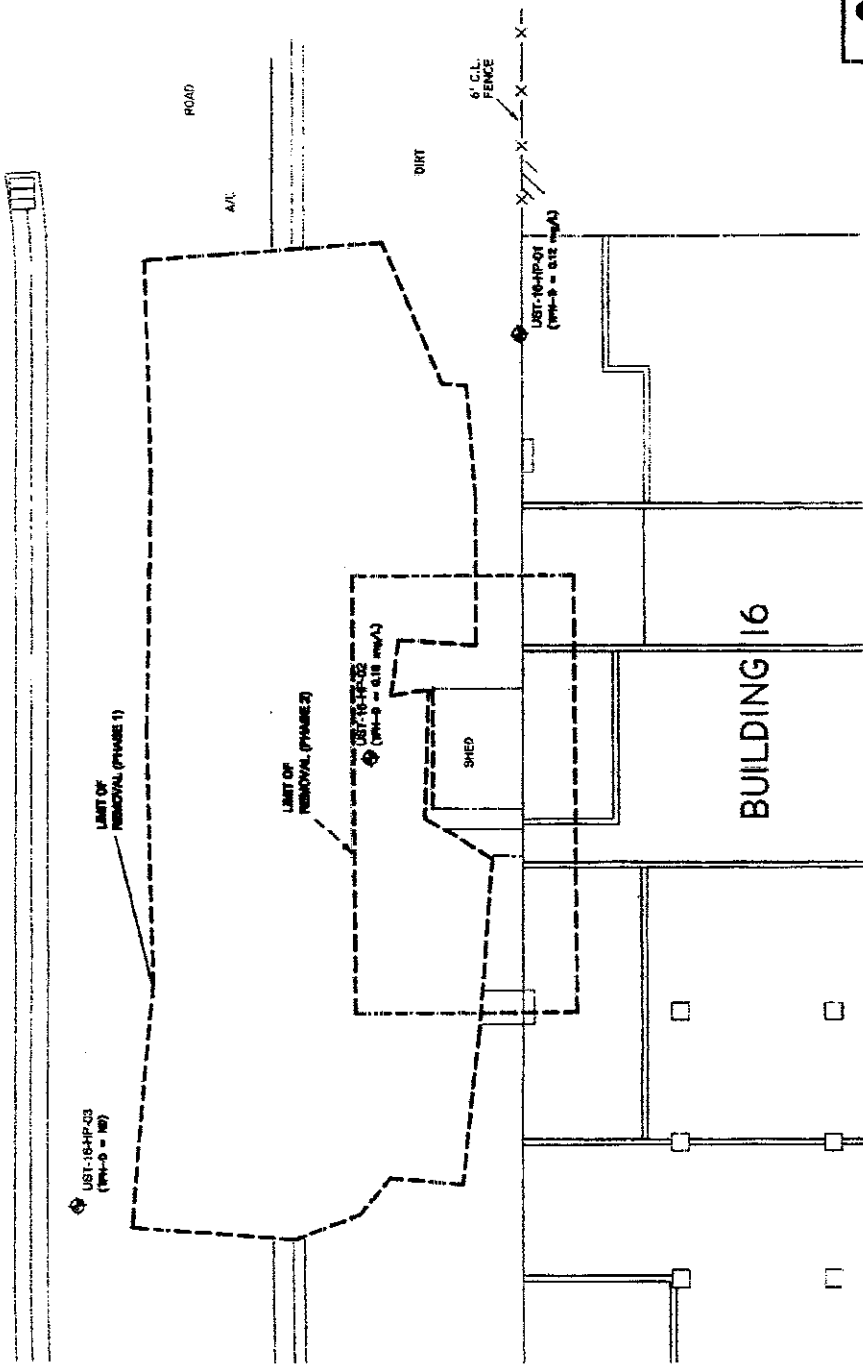
Shaw Environmental, Inc.

**EFO SOUTHWEST
FUSTIN, CALIFORNIA**

FIGURE 4
PHASE 2 EXCAVATION LIMITS
AND CONTAMINATION SAMPLING POINTS
LUST-18
FORMER MARINE CORPS AIR STATION
TUSTIN, CALIFORNIA

LEGEND:

- | | |
|---|---|
| ● | PHASE 1 CONCENTRATION SAMPLE LOCATIONS |
| ● | PHASE 1 CONCENTRATION SAMPLE LOCATIONS
INCREASED CLUSTERS (APRIL 1987) |
| ● | PHASE 2 CONCENTRATION SAMPLE LOCATIONS |
| ● | PHASE 1 SO ₂ CONTAMINATION |



DATUM
 HORIZONTAL:
 North American Datum of 1983 (NAD 83)
 CGS85, ZONE 11, 1991.55 epoch adjustment
 VERTICAL:
 North American Vertical Datum of 1988 (NAVD 88)
 Orange County Survey 1995 adjustment

	EFD SOUTHWEST TUSTIN, CALIFORNIA
	FIGURE 8 GROUNDWATER VERIFICATION RESULTS (TWH-2) (TWH-3) (TWH-4) FORMER MARINE CORPS AIR STATION TUSTIN, CALIFORNIA



California Regional Water Quality Control Board

Santa Ana Region



Terry Tamminen
Secretary for
Environmental
Protection

3737 Main Street, Suite 500, Riverside, California 92501-3348
(909) 782-4130 • Fax (909) 781-6288
<http://www.swrcb.ca.gov/rwqcb8>

Arnold Schwarzenegger
Governor

March 10, 2004

Commander
(Mr. Jerry Dunaway, Code 06CM.JD)
BRAC Environmental Coordinator
Southwest Division, Naval Facilities Engineering Command
1220 Pacific Hwy
San Diego CA 92132-5190

COMMENTS ON FINAL SITE ASSESSMENT REPORT FOR UNDERGROUND STORAGE TANK 268 (INCLUDING UNDERGROUND STORAGE TANKS 18A AND 18B), FORMER MARINE CORPS AIR FACILITY, TUSTIN

Dear Mr. Dunaway:

We have completed our review of the above-referenced document, dated December 31, 2003, which we received on January 9, 2004. The report describes the removal of gasoline-contaminated soil in four phases, the collection of confirmation soil samples and the collection of groundwater samples. Gasoline was detected in the groundwater samples.

The responses to our comments on the draft document dated August 14, 2003 are satisfactory. We accept the findings of the report that the soil remediation is complete. We also concur with the recommendation in the report for the installation of groundwater monitoring wells.

If you should have any questions, please call me at (909) 782-4498 or send e-mail to phannon@rb8.swrcb.ca.gov.

Sincerely,

Patricia A. Hannon
SLIC/DoD Section

cc: Mr. (Ram) Anantaraman Peddada, Dept. of Toxic Substances Control
Ms. DeAnna Dunbar, Southwest Division, Naval Facilities Engineering Command
Mr. James Ricks, U. S. EPA, Region IX

California Environmental Protection Agency

EXHIBIT E

LAND USE CONTROLS COMPLIANCE CERTIFICATE - EXAMPLE

Exhibit E
Land Use Controls Compliance Certificate
Early Transfer Parcel 24-1A
Former Marine Corps Air Station Tustin
EPA I.D. Number: CA9170090022

Property Owner^a: _____

This evaluation is the final Navy certification just prior to site conveyance (yes or no) _____

If for an annual inspection, this evaluation covers the period from through _____

Checklist

	<u>In Compliance</u>	<u>Non-Compliance</u>	<u>See Comment</u>
1) No installation of new groundwater wells of any type within the area requiring institutional controls. ^{b,c}	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) No activities that could expose groundwater within the area requiring institutional controls. ^{b,c}	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) No groundwater use for any purpose (including, but not limited to, human consumption, irrigation, heating/cooling purposes, and other industrial processes). ^{b,c}	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4) No altering, disturbing, or removing groundwater monitoring wells and associated equipment within the area requiring institutional controls. ^{b,c}	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5) No installation of structure or improvement that has the potential to affect plume migration within the area requiring institutional controls. ^{b,c}	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) No construction and/or operation within the area requiring institutional controls that interfere with ongoing monitoring or assessment work, or the final remedy being conducted by Department of the Navy, or the Federal, State, or local regulatory agencies. ^{b,c}	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) Parcel use consistent with Specific Plan/Reuse Plan City of Tustin. "Draft MCAS Tustin Specific Plan/Reuse Plan" (original July 1996, errata September 1998).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Exhibit E (continued)
Land Use Controls Compliance Certificate
Early Transfer Parcel 24-1A
Former Marine Corps Air Station Tustin
EPA I.D. Number: CA9170090022

I, the undersigned, hereby certify that the above-described land use restrictions have been complied with for the period noted. Alternately, any known deficiencies and completed or planned actions to address such deficiencies are described in the attached Explanation of Deficiencies

Signature

Date

Notes:

- ^a A Homeowners Association may submit this form on behalf of all Property Owners, whose property is subject to the "Covenant to Restrict Use of Property - Former Marine Corps Air Station - Early Transfer Parcel ETP 24-1A" and the Quitclaim Deed.
- ^b Future property owner(s) may apply for a written variance from the restrictions in accordance with the "Covenant to Restrict Use of Property - Former Marine Corps Air Station - Early Transfer Parcel ETP 24-1A" and the Quitclaim Deed.
- ^c A property owner(s) may seek a variance or termination of restrictions on the property contained in the Quitclaim Deed pursuant to the variance and termination provisions in that document.

Mail completed form(s) to the DON, U.S. Environmental Protection Agency (EPA), Department of Toxic Substances Control (DTSC), and Regional Water Quality Control Board (RWQCB) by January 15th of each calendar year.

Department of the Navy
Base Realignment and Closure
Program Management Office West
1455 Frazee Road, Suite 900
San Diego, CA 92108-4310

Department of Toxic Substances Control
Office of Military Facilities
5796 Corporate Avenue
Cypress, CA 90630

U S Environmental Protection Agency
Superfund (SDF 8-1) Region IX
75 Hawthorne Street
San Francisco, CA 94105-3901

Santa Ana Regional Water Quality
Control Board
California Tower
3737 Main Street, Suite 500
Riverside, CA 92501-3339